PRACTICAL OBSERVATIONS

ON THE

OPERATION AND EFFECTS

OF CERTAIN

MEDICINES

IN THE

PREVENTION AND CURE OF DISEASES

TO WHICH

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APPLICABLE ALSO TO THESE KINGDOMS.

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TO WHICH

EUROPEANS ARE SUBJECT IN HOT CLIMATES,

AND IN THESE KINGDOMS;

PARTICULARLY THOSE OF THE

LIVER, FLUX, AND YELLOW FEVER:

APPLICABLE ALSO TO THE

PREVENTION AND CURE

OF THE

SCURVY.

Written in a familiar Style.

RECOMMENDED TO THE PERUSAL OF EVERY PERSON GOING TO SEA, AND RESIDING ABROAD.

TO WHICH ARE ADDED,

Plain Directions for private Use in the Absence of a Physician;

AND

Observations on the Diseases and Diet of Negroes.

WITH

A copious explanatory Index.

BY R. SHANNON, M. D.

Surely there are no lives more valuable to the State, or have a better claim to its care, than those of the BRITISH SAILORS, to whom these kingdoms comparatively owe their riches, protection, and liberties.—When replete with health, what enterprise too dangerous, what atchievement too great, for these brave fellows? DR. LIND.

LONDON:

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1794.

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TO HIS GRACE

The Duke of RICHMOND, K.G. F.R.S.

MASTER OF THE ORDNANCE;

Lord AMHERST, K.B.

COMMANDER IN CHIEF;

The Right Hon. WILLIAM WINDHAM,

SECRETARY AT WAR;

The Earl of CHATHAM, K.G.

FIRST LORD OF THE ADMIRALTY;

THE RIGHT HONOURABLE THE OTHER

Lords Commiſſioners of the ADMIRALTY;

AND THE

Directors of the Honourable EAST INDIA COMPANY:

THIS ATTEMPT

TO BENEFICIALLY CONTRIBUTE TO THE HEALTH AND PRESERVATION OF THE

NAVY AND ARMY OF GREAT BRITAIN,

AND THE

SEA AND LAND FORCES OF THE EAST INDIA COMPANY,

AND OF

ALL PERSONS WHO GO TO SEA, OR RESIDE ABROAD IN

HOT CLIMATES,

IS RESPECTFULLY INSCRIBED,

BY THEIR MOST HUMBLE SERVANT,

RICHARD SHANNON.

Cleveland Row,
St. James's, 1794.

PREFACE.

THE chief purpoſe of the ſtudy of Medicine is to acquire a knowledge of a ſafe and effectual method of curing diſeaſes. The attainment of this end is intimately connected with the publick good. Every endeavour to promote it, therefore, may be conſidered as having ſome claim to a candid examination. Under this perſuaſion, I ſubmit the following obſervations to publick inſpection.*

In order to render this treatiſe as extenſively uſeful to every claſs of readers as I could, particularly thoſe for whom it was deſigned, the medical men of our fleets and armies,

* Dr. A. Duncan.

and

and all who navigate the ſeas, and viſit or reſide in warm latitudes, or hot climates, whether practitioners in phyſick or not; independent of what has fallen within my own obſervation and experience; I have conſulted ſuch authors as have written upon the ſubject, that were obtainable at the time. In ſo doing, choice has been made of what appeared to me moſt likely to promote the prevention and cure of diſeaſes incident to Europeans in thoſe climates.

In which, due regard has been paid to the improvements in medicine that are daily made, and the diſcoveries added to the common ſtock, comprehended within the limits of my preſent purſuit. Nor do I apprehend that I have gone out of my way, except ſtopping for a moment to recommend a mode of treatment, and a medicine, which I have reaſon to believe the beſt calculated to remove the *Hydrophobia*, in the *Rabies-canina*; a dreadful malady,

malady, from which, perhaps, no country is exempt. The early appearance of ſuch a ſymptom has hitherto cut off all relief; to obviate which is my intention.

In all the diſeaſes treated on, after ſetting down the ſymptoms, I have firſt ſtated, and without reſerve, the method of prevention and cure, pretty exactly, though not very ſyſtematically, with the medicines in uſe; faithfully narrating every recommendation that each author (made uſe of) has thought proper, or from experience found neceſſary, to enforce.

Having in this manner done them ſtrictly the juſtice intended by the author himſelf, as far as came within the ſphere of my comprehenſion, I next proceed exactly to explain the operation and effects of my own remedies, in a manner, I truſt, that will be found equally impartial; and their application and uſe exhibited in ſuch forms, as ſeemed

to me beſt calculated to render them ſpeedy in their operation, and beneficial in their effects; and in which they have happily ſucceeded, even beyond my own expectations.

In doing which, it will be found that I have not been unmindful of that uſeful claſs of people the *Negroes*; in which, not only the intereſt of the planter, but the feelings of humanity are concerned.

I ſhould have thought I was to blame not to have availed myſelf of ſuch authors as I have read, in a work, the ſubject of which is of ſo much importance to ſo large a part of the nations of Europe, eſpecially the maritime ſtates, or thoſe moſt powerful in their fleets and armies, and moſt extenſive in their commerce and foreign poſſeſſions. Thoſe authors which I have not ſeen, I moſt ſincerely regret; and ſhall not fail to profit by their labours on a future occaſion. And it will, it is preſumed, be readily allowed, that

I ſhould

I ſhould have been equally to blame, not to have enriched a work like this with ſuch extracts as were found ſuitable to my ſubject, and calculated to promote ſo good a purpoſe.

Whatever I have borrowed from any gentleman's works, I have candidly acknowledged; and imagined I did them more juſtice, in giving it in their own words, than in riſking the cenſure of mutilation, by giving it in my own. If I have omitted to name any one, who has given me the leaſt aſſiſtance, I am ſure it is unintentional; and ſhall, if it come to my knowledge, be rectified in any future edition this work may undergo.

One object, I hope, has never been loſt ſight of, the ſpeedieſt method of relieving the patient by the moſt ſafe and powerful means. In the laying down which, I have ſimplified the manner, for the benefit of the patient and his friends about him, that no injury ſhould reſult from delay in the abſence of a medical

practitioner, to enable them, under ſuch circumſtances, to immediately adminiſter relief with confidence. A matter of no ſmall utility in diſeaſes ſo rapid in their progreſs, and fatal in their effects; in thoſe climates, where every thing that can be done, ſhould be done immediately, or probably the patient may be loſt.

The Scurvy, from its importance and prevalency in the ſcale of bodily infirmities, has occupied a large portion of the labour beſtowed on this work; where, it is hoped, that in what I have gleaned up from others, or advanced from myſelf, the choice has not been injudicious, nor the poſitions ill-founded.

Although a ſubject, on which much has been written, it has not been exhauſted. If I muſt acknowledge, that when I entered the field, I found much of the ground pre-occupied, I muſt at the ſame time confeſs, there was much more open to future inveſtigation; conſe-

conſequently there was not only room enough for my little tract, without trenching upon the opinions of others, but ample ſpace for thoſe that may follow.

Some opinions I have endeavoured to ſupport; moſt I have given as I found them; both theſe, together with what I have advanced myſelf, are humbly ſubmitted to the deciſion of the candid reader.

Where I have advanced any thing, which to ſome readers may wear the appearance of novelty, it has neceſſarily ariſen out of the ſubject, and not from a wiſh to diſtinguiſh this treatiſe by ſuch unprofitable means.

To have unneceſſarily differed with many able and experienced authors, who have beſtowed their labours on this ſubject, however it might have gratified an idle vanity, could have brought me but few reſpectable admirers; and, what is of infinitely more conſequence, not have rendered the work more valuable.

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My views have not been to excite admiration, but to extend relief in a diſeaſe, which Dr. Milman has judiciouſly ſtiled the *eſſence of debility*; by adding my mite to the common ſtock; by throwing ſome light, I hope, on the *medicines* in uſe; by ſhewing where they were defective; how they could be improved; and by what additions. Thoſe I have ſhewn a diſpoſition to introduce, I leave to ſtand or fall by their own merit.

The portable-whey, portable-lemonade, acid of tartar, and ſome others, rather articles of *regimen* than medicines, will, I flatter myſelf, not be ill received, as they bid fair to be uſeful additions to the ſurgeon's neceſſaries.

Dr. Lind has been the *compaſs*, and the other authors the *chart*, by which I have ſhaped my courſe; in what has not fallen within my own obſervation, or reſulted from profeſſional knowledge and experience.

How far I have ſucceeded in my views, which have had for their object the prevention

and

and cure of the *Scurvy*, and *Diſeaſes incident to Europeans in hot climates and on long voyages*, will be beſt underſtood by the liberal and candid practitioner; who beſt knows how and where to make proper allowances for the inaccuracies and imperfections of

THE AUTHOR.

Cleveland Row,
St. James's, 1794.

CONTENTS.

INTRODUCTION.

Page ix

DISEASES IN HOT CLIMATES.

Fevers.

PARTICULAR OBSERVATIONS ON THE BILE, 1

The regulating Standard of Health, 2—Its Univerſality, 3—Its Energy continues the Exiſtence of Animals, 3—A natural and univerſal Medicine, 3—When depraved in Quality, when deficient in Quantity, when altered in its Craſis, and when redundant in Quantity, the Cauſe and Effects of Diſeaſes, 3, 4—Remittent or intermittent Fever, Cholera Morbus or Dyſentery, 4—Its too great Evacuation robs the Chyle of its mean Inſtrument of Digeſtion, 5—Explanation of a bilious Temperament, 5, 6, 7—Its Connection with the Excretions of the alimentary Canal, - - - - - 10

PRACTICAL OBSERVATIONS IN THE PREVENTION AND

AND CURE OF DISEASES TO WHICH EUROPEANS ARE SUBJECT IN HOT CLIMATES, 11—*General Obſervations on Fevers*, - - 11. 398
The general Mode of exhibiting the Antifebrile Medicines; with particular Obſervations on Fevers, - - - - 13
The Bilious, African, Weſt Indian, Bengal, Marſh, Ship, Yellow Fever, &c. - - 27
African Fever, - 27. 36. 55. 401
Atrabilioſa Fever, - - - 404
Bengal Fever, - - 27. 401. 404
Bilious Fever, - 12. 27. 51. 403
Continual Fever, - - 12. 37, 38
Camp Fever, - - xxx. *et ſeq.*
Eaſt India Fever, - xxix. 27. *et ſeq.*
Fen Fever, - - - 401
Frenzy Fever, - - - 164
Guinea Fever, - 27. 36. 55. 62. 401
Hectic Fever, - - 178. 203. 207
Hill Fever, - - - - 401
Hoſpital Fever, - - - 49. 51
Jail Fever, - - - - 49. 51
Jamaica Fever, - - 12. 27. 37, 38
Inflammatory Fever, - xxxii. 39. 62. 197
Intermittent Fever, - 137—*See Ague.*
Malignant Fever, - - - 40. *et ſeq.*
Marſh Fever, - - - 27. *et ſeq.*
Nervous Fever, - - xxxii. *et ſeq.* 463
Petechial Fever, - - xxxii. *et ſeq.*

Putrid

Putrid Fever, - - 29. 113. 463
Puka Jungle Fever, - - 401. 404
Remittent Fever, - - 51. 37. 399
Senegal Fever, - - 51. 401. 403
Ship Fever, - - - 51, 52. *et seq.*
Synochus Fever, - - 27. 39. 197
Tropical Fever, - - - 36, 37
Typhus Fever, - 47. 113. 146. 463
Weſt India Fever, - - 12. 27. 37
Yellow Fever, - 49. 54. 55. *et ſeq.*
Dry Belly-Ache, - - - 62
Guinea-Worm, - - 78. 380
Tetanus and Locked Jaw, - 80 to 100. 409
Wounds and Amputations, - - 80
Caſes, - - 80 to 100.—*See the Index.*
Rabies Canina, - - - 101
The Barbiers, - - - 110

PART THE SECOND.

FLUX, AND DISEASES IN HOT CLIMATES, 119
The Dyſentery, and Cholera Morbus, 119. 312. 416
Cauſes, - - - 123, 124
Symptoms, - - - 119
Cure, - - - 123 to 136. 416
Bloody Flux, - - - 120
Cholera Morbus, - - - 128
Diarrhœa, - - - - 134

PART

PART THE THIRD.

AGUE, AND DISEASES IN HOT CLIMATES, 137. 408
Intermitting Fever, - - 137. 408
Cauſes, - - - 14. 399
Symptoms, - - - 137
Cure, - - - 139 to 167
Quotidian, - - - 138
Tertian, - - - - *Ibid.*
Quartan, - - - - *Ibid.*
Autumnal, - - - - *Ibid.*
Vernal, - - - - *Ibid.*
Cold Stage, - - - - *Ibid.*
Hot Stage, - - - - - *Ibid.*
COMPARATIVE EFFECTS OF OUR MEDICINES, 147
With the Bark, 141, 142, 143, 144. 147, 148—With Antimony, 148—Antimony with Arſenic, 157, 158—Antimony with Mercury, 158—With Mercury, 149, 150. 158—With Opium, 146. 150, 151—With Camphor, 152—With Muſk, 152, 153—Zinc, 153, 154. 160—Multiplicity of Medicines employed in Agues, 154, 155. 159—Arſenic, 156, 157, 158—Sal Ammoniac, 159—Willow Bark, - - 160, 161
Mode of exhibiting the Antifebrile Powders in Intermitting Fevers, - - - - 162
Dropſy, - - - - 168. 315
Jaundice, - - - - 171. 236
Inflam-

Inflammation of the Liver, - 147. 422
Ague Cake, - - - 178
Hectic, - - - 178. 203. 207
Hæmorrhage, - - - 178
Black Vomit, or Malaene, - 179, 180
Some further Particulars of the Bile, and the Application and Effects of Acids in FEVERS, *equally applicable to the Cure of the* SCURVY, 182
ACIDS, - - - - 182
Their Effects on the Bile, 183. 208—Solicited by the Appetite, 188—And cordially received by the Stomach, 189—Excite Saliva, 190—Applied to the Organ of Smelling, recal from Deliquium, 90. 415—Remove glandular Obſtructions, 190—Reſolve Tumours, 191—Correct the Saliva, 191—Injure the Teeth, 192—Excite a Senſe of Hunger, 192—Stimulate to Digeſtion, 193—Strengthen the Tone of the Stomach, 193—Meet a Corrector in the Bile, 194—In Paralyſis of the Bowels, 194—Stimulate the bronchial and renal Glands, 195—Check Putrefaction, 191. 195, 196—Their Efficacy in the SCURVY, 196—Promote good Chyle, 196—Their Influence on the Blood, Secretion, and Excretion, 195, 196. 204—Their tonic, antiſeptic, aſtringent Power, in Sprains, Bruiſes, and Tumours, 188. 193. 195—Diaphoretic, 193—Reſolve inveterate Obſtructions, 195. 197. 199—Their Uſe in a Variety of Diſorders con-

connected with FEVER, 196, 197. 207—Obſtructions induced by Viſcidity, and in Spaſms induced by Acrimony, 197—In inflammatory, putrid, malignant Fever, 199. 201, 202—Recommended in a great Quantity, 201—Internally and externally, 202—Hectic Fever, 202—Produced by Ulcers, 203—The Lungs its peculiar Subject, 204—Suffer from many Cauſes, 204—The ſame Reaſon not concluſive here as in Fevers, 205—Where the more relaxing deobſtruents are indicated, 206—A true hectic is a Fever attendant upon Abſorptions, 207—Acids in Diarrhœa, 207—In chronic Diſeaſes, 208—Are thoſe that affect the Organs of Digeſtion, and the alimentary Canal, 208—Their Uſe in Hæmorrhages, 208—Diveſted of Mucilage, 209, 210—*The mineral Acids not to be exhibited with our Medicines*, - - 32

Depuration of Lemon-juice, - - 210

Aſtringent Principle, - - - 211

Acid of Galls, - - - 211

In a cryſtallized Form, - - - 212

PART THE FOURTH.

SCURVY, AND DISEASES IN HOT CLIMATES, 214. 438

The Scurvy, its loathſome Symptoms and Concomitants, - - - 214

Some

Some of theſe Concomitants or Appearances frequently miſtaken for the true Scurvy, - 235
Athrophy, - - - - *Ibid.*
Scrophula, - - - - - *Ibid.*
Jaundice, - - - - 171. 236
Leproſy of the Arabians, or Black Scurvy of the Weſt Indies, - - - 236
Leproſy of the Greeks, a Diſeaſe of hot Climates, - - - - 237
The Leproſy, commonly met with in theſe Kingdoms, - - - - 237
Mode of exhibiting the Antiſcorbutic, Antifebrile Medicines in the Scurvy, - - - 243
Mode of ſucceſsfully exhibiting the Antiſcorbutic Medicines; eſpecially when the general Method of Cure cannot be aided with the Aſſiſtance of the moſt deſirable *Regimen,* - 267
I. Firſt Stage of the Symptoms of the Scurvy, - - - 268
Method of Cure, - 275, 276
II. Second Stage of the Symptoms, 292
Method of Cure, - - 296
III. Third Stage of the Symptoms, 294
Method of Cure, - - 296
Scorbutic Dyſentery, - - - 312
Scorbutic Dropſy, - - - 315
Scorbutic œdematous Swellings, 315, 316
Scorbutic Ulcers, - - - 316. 322
Vegetable Food, - - - - 250
Animal

Animal Food, - - - - - 253
Portable Whey, - - - - 284
The Preservation of Orange, Lemon, and Lime Juice, - - - - - - - 331
Rob of Lemon or Lime Juice, - - 333
Dry Lemonade, - - - - - 335
Acid of Tartar, - - - - 337
Sour Crout, - - - - - - 338
Preservation of Vinegar, - - - 342
Porter Beer, - - - - - 344
Tartar Ale, - - - - *Ibid.*
Decoction of the Woods, - - - 343
MEDICAL DIRECTIONS FOR PRIVATE USE IN THE ABSENCE OF A PHYSICIAN, - 355
Remarks on some of the Diseases of Negroes, 372
See the Index.
With respect to the Feeding of Negroes in the Sugar Colonies, - - - - 391

CONCLUSION, OR POSTSCRIPT.

Observations on Fever, - - - 398
Dysentery, - - - - - 416
Liver, - - - - - - 422
Scurvy, - - - - - - 438
Tetanus, or Locked Jaw, - - - 409
Prickly Heat, - - - - 489
Coup de Soleil, - - - - - 491

INTRODUCTION.

THE modern laudable mode of proſecuting inquiries in natural philoſophy, chemiſtry, and phyſic, uninfluenced by any authority, and biaſed by no theory, that has not ſtood the teſt of experience, has enriched medicine as well as the other ſciences with many uſeful diſcoveries.

Yet a medicine, or medicines, that could be relied on, with any poſitive degree of certainty, in the prevention and cure of thoſe diſeaſes, ſo formidable in appearance to Europeans on long voyages, and in hot climates; and ſo dreadful in their effects as to deter many from riſking the conſequences; the well-known havock that they conſtantly make in our fleets and armies, has employed the pens and practice of many able

practitioners, without that competent degree of ſucceſs, reaſonably to be expected.

It has long been a ſubject of medical enquiry among thoſe who, from their enlarged ſcale of practice and ſituation, have been witneſs to the fatal effects of theſe diſeaſes; and perhaps there are few ſubjects that have furniſhed the world with a greater number of laudable, well-intended plans, for the prevention and cure of theſe diſeaſes, particularly the ſcurvy.

And ſome of theſe by men of genius, learning, and ability, who, from their ſituation on board ſhip, and at our hoſpitals at home and abroad, have been ſuffering witneſſes to the frightful ravages and mortality of theſe diſeaſes, more dreadful and deſtructive than the common enemy.

How painful and diſtreſſing muſt the ſituation of thoſe men be, when they found themſelves deſtitute of reſource in medicine, to counteract the ravages of diſeaſes, that hourly leſſened the number of their companions and friends! who were often this day well, the next day ill, and the third day dead. The horror of the gigantic ſtrides of irreſiſtable diſeaſe, is eaſier to be conceived than deſcribed.

That

That this is often the caſe of Europeans, and in one or other of the tropical latitudes always the caſe, the melancholy page of well-authenticated hiſtory, and the miſerable fate of friends and relations, prove much too true. Torn from the ſide of their companions, in ſpite of every effort of the able practitioner and that the moſt tutored ſkill and laboured ingenuity could ſuggeſt.

If the number of treatiſes written with a view to guard future navigators, merchants, travellers, and ſettlers, from the malignancy of ſuch fatal diſeaſes, were ten times as many, ſtill it might be a matter of wonder that they were not infinitely more numerous; taking into conſideration the magnitude of the object, and the utility annexed to it.

All that have fallen within our obſervation have added ſomething to the common ſtock, and conſequently deſerve well of every commercial nation, and every nation formidable in their fleets and armies. And many of the gentlemen mentioned in the following pages, are ornaments to their profeſſion, country, and ſcience.

The highly improved *Materia Medica* of Euro-

pean nations; poſſeſs an infinity of uſeful drugs of undoubted efficacy. And perhaps no period of medical hiſtory can boaſt of ſuch a number of able practitioners, more free from prejudice, or more open to conviction.

Many of theſe drugs, of the moſt powerful kind, in the ableſt hands, have lately been the ſubject of medical enquiry; and their operations and effects impartially delineated. Thoſe which we moſt approve are inſerted here, without attachment to ſyſtem, or bias to theory.

Thoſe which are the reſult of our own reſearch, ſuch has been their ſucceſs, and ſo much have they ſurpaſſed our expectations, that we often feel ourſelves ſeized with paroxyſms of partiality, when we are endeavouring at that deſcription, which we at the moment, think is but barely doing them juſtice.

The great bulk, quantity, and long continuance of ſome; the uncertain, and ſometimes violent, operations of others, of the powerful medicines in uſe, with many other inconveniencies that may in time be corrected, by the judicious management which at preſent prevails, joined to what we have

have ſeen and felt for ourſelves and companions in thoſe climates, led us to inveſtigations of this ſort.

We could not poſſibly have ſo narrow an opinion of Nature's great plan; we could not otherwiſe ſuppoſe but that its great author had made ample proviſion for the cure of every diſeaſe incident to the human frame, and endowed us with underſtanding to collect and find them out, among the great variety ſo liberally diſperſed in the vegetable, animal, mineral, and marine kingdoms of nature—theſe exhauſtleſs ſtorehouſes to which we have free acceſs.

We are among the number who have, we hope, very laudably beſtowed ſome labour in purſuit of the diſcovery of a medicine, or medicines, to counteract the malignancy of thoſe depopulating maladies, that might, with a ſufficient degree of certainty, anſwer the expectation of both phyſician and patient, in the prevention and cure of theſe diſeaſes.

And if we are ſo happy as to find theſe medicines meet with the like ſucceſs in other hands, that they have in ours, we may truly ſay without vanity, that we have at length ſucceeded in the

laudable wiſh, of diſcovering the uſe and application of medicines, that may very probably give many years of exiſtence to great numbers of Europeans yet unborn; who, like their predeceſſors, might otherwiſe have fallen a prey to diſeaſes, which were in a great degree hitherto unconquerable; and to Great Britain more invulnerable than her enemies.

If, by a ſpecific, an infaliable remedy is meant, we hope it cannot be collected from what we have yet ſaid, that we conſider our medicines, or any others that we have introduced into this treatiſe, intitled to that appellation. If their operation and effects, will but anſwer the important purpoſe of preventing and curing theſe formidable diſeaſes, which we have not the leaſt reaſon to doubt, the diſcovery will amply recompenſe our labours.

We have not in their exhibition met with any of the inconveniencies common to moſt other powerful medicines, uſually employed in the ſame intention, which, independent of their bulk and quantity, and the neceſſity for their long continuance after a cure is performed, to prevent the danger of a relapſe, too frequently leave abdominal

nal obſtructions: all of which inconveniencies our medicines will be found totally free from. And this we are warranted to ſay from the experience of their good effects; ſome of which are enumerated by a variety of caſes, to be given in the ſecond part of this treatiſe.

Under theſe circumſtances we have every reaſon to expect, that the world will derive great benefit from theſe medicines, when prudently adminiſtered in conformity to the method laid down. We ſhould not have preſumed to have made this obſervation, and many others that may follow, had we conceived ourſelves writing to medical men only. But as we have all through endeavoured to have made ourſelves underſtood by the patient alſo, we have adopted a language moſt likely to anſwer our purpoſe; theſe diſeaſes often occurring in ſituations where at all times medical aſſiſtance cannot be had: and thoſe that are moſt urgent in their ſymptoms, and ſudden in their effects, that many might fall a ſacrifice to the abſence of a ſurgeon or a phyſician, was no plan chalked out for them, and thoſe about them, to purſue for their immediate ſafety.

Although we are apprehenſive that we may be thought to have ſaid too much in favour of theſe medicines, we cannot help feeling that we could not have ſaid much leſs; knowing, from the faireſt and moſt concluſive trials, that they may ſafely be depended on in diſeaſes common to Europeans in hot climates, and equally ſucceſsful in the prevention and cure of the ſcurvy at ſea.

The medicines are ſo quick in their operations, and ſpeedy in their effects, that even on this account, they ſeem calculated to counteract the rapid progreſs of theſe deleterious maladies.

It is hoped the judicious reader will pay that attention to theſe medicines which the importance of the ſubject demands, and not think of relinquiſhing them, under the notion that their action is not explained to his ſatisfaction. But, on reflecting how little it has been in the power of phyſicians and chemiſts, to ſatisfactorily account for, or explain on what principle the Peruvian bark operates ſo ſucceſsfully, in ſo great a variety of diſeaſes, although acquainted with its effects for theſe hundred and fifty years; this ſhould operate as an inducement to examine more particularly into their

nature,

nature, while they admire and profit by their effects; which is the only clue we have to lead us at preſent.

As it could not but appear to me a ſubject worthy of the ſtricteſt enquiry, I have been led to conſult ſeveral authors who have treated of theſe diſeaſes; and am happy to find that the mode of practice laid down by thoſe of the moſt obſervation and experience, ſeemed continually aimed at eradicating thoſe diſeaſes by the combined effect of medicines, the efficacy of which is eminently united in thoſe we here offer to the public; yet, I am free to acknowledge, that, at the very moment they were endeavouring to reduce the number of medicines, all of which were ſuppoſed to be more or leſs uſeful, to a few of the beſt and moſt certain in their effects, and for that reaſon moſt to be depended on, they ſeemed to conclude with the hopeleſs obſervation, of what medicine can be found to counteract the continued influence of improper diet, air, and confinement. And although I muſt further acknowledge, that men at ſea are out of their proper element; and that thoſe who have been habituated to breathe the

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elaſtic air, and live in the bracing temperature of moſt European latitudes, when at ſea, or in Africa, the Weſt or Eaſt Indies, they will more or leſs, like exotic plants removed from their native ſoil and temperature, ſicken at the change, and ſometimes wither to the root, under the influence of improper nurture and a different atmoſphere.

Still the motive would be laudable to palliate what we could not wholly counteract. And though there might be ſome caſes ſo inveterate and ſudden in their effects as not to yield to the efficacy of our medicines, yet if they could be relied on to relieve one out of ten, inſtead of nine-tenths of thoſe who had taken them (which laſt is truly the caſe), they muſt be allowed to merit the attention of every practitioner in phyſic, who values the life of his patients, more than an adherence to the deep-rooted prejudices entertained againſt ſpecific remedies.

The object of medicine is to relieve the ſick, remove diſeaſes, and reſtore health. The more expeditiouſly that is done, the leſs the conſtitution of the patient muſt be injured. If our medicines

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perform this in a few days, and in ſome caſes in a few hours, with as much ſafety and effect as a ſucceſsful courſe of medicine has uſually hitherto done in a few months, or weeks, ſurely they deſerve a fair trial, and without which it would be illiberal to condemn them.

Thoſe dreadful diſorders to which they are moſt applicable, admit but of too many deſperate caſes, in which, even a doubtful remedy is better than none. And if theſe practitioners in phyſic who are acquainted with the ſudden and fatal effects of the accute malignant diſeaſes enumerated here, eſpecially in fleets and armies, will but admit the juſtneſs of this reaſoning, and receive and adminiſter with candour medicines that their own obſervations and experience will ſoon warrant the uſe of, they will be inſtrumental in ſaving the lives of thouſands.

Without aſſuming any greater pretenſions to candour and diſinteredneſs, than the reſt of our profeſſion, we confeſs we have not been wholly free from prejudice againſt medicines introduced as ſpecifics ourſelves. But as it is not the buſineſs of a chemiſt to be led by names, nor influenced by

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mere appearances, after having ſubmitted them to the teſt of that infalliable touchſtone—experiment, we have always given them the credit we found they deſerved, and occaſionally recommended them where we thought them uſeful, without ever knowing any thing of their authors.

Although the majority of the medical hands into which this paper may fall, cannot be ſuppoſed to ſtand in need of the deſcription of the ſymptoms preceding each diſeaſe to which our medicines are applicable, yet to the younger claſs of thoſe gentlemen, in the early career of their practice, they may not be altogether unacceptable. And ſomething being due to an intelligent patient, and to his friends, where theſe medicines may make their way; and in ſituations where medical aſſiſtance may not be at hand, has induced us to lay the ſymptoms down rather fuller than the extent of ſo ſmall a treatiſe would otherwiſe admit, the better to enable them to judge of the quality and nature of the diſeaſe they were about to remove.

Health is ſo great a bleſſing that every attempt directed towards its preſervation, muſt at leaſt de-

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ſerve ſome ſmall ſhare of public approbation. The air we breathe has a great influence on our bodies. It is well known that we can exiſt much longer without food than without air; and the ſalubrious quality of this element tends greatly to the well-being of the human frame; it is therefore of the utmoſt conſequence, in all our inveſtigations of diſeaſes, to enquire very minutely into the ſtate of the atmoſphere we breathe. Beſides its ſenſible qualities, heat and cold, moiſture and dryneſs, it is well known to contain vegetable and animal, ſaline and mineral, ſubſtances, which it holds in ſolution. Modern diſcoveries have thrown great light on this ſubject not neceſſary to enlarge on for the preſent.

Bad air has a great influence on the ſtomach and inteſtines; it generally occaſions a loathing and indigeſtion, with an averſion to food; together with frequent bilious ſtools: thoſe who ſeem to be otherwiſe in good health become of a yellow complexion: exceſs in eating or drinking ſeem much more pernicious to the conſtitution in impure air: groſs eating, a ſurfeit of fruit, undue mixtures in the ſtomach; ſuch as of fleſh, fiſh, and

fruits,

fruits, taken in at one meal; in thoſe climates particularly where bad air is rendered ſtill worſe by heat, will uſually bring on a cholera-morbus, or violent dyſentery.

The bad air on board ſhips, ariſing from heat and moiſture, the number of men impacted together in a confined ſmall ſpace on board ſhips of war and tranſports, in which the men ſleep, and breathe an atmoſphere of the perſpirable matter of each other, blended with the bad foul air of the ſhip, loaded with other noxious exhalations, from the bilge water and contents of the ſhip's hold, and the effluvia of the ſick, are ſufficient cauſes for the ſcurvy and putrid malignant fevers, commonly on board ſhips at ſea,* independent of the indigeſtible unaſſimilable food, and the putrid drink of a ſailor, which, no doubt, largely contribute to theſe diſeaſes.

That the ſcurvy, and putrid malignant fevers ſhould derive their origin from ſuch fomes of corruption floating in the incumbent air, may be eaſily conceived; that the lungs ſhould be injured from their continual contact with ſuch an in-

* See Scurvy, p.

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elaſtic foul air, and a degeneracy of the whole maſs of circulating fluids take place from abſorption, and a relaxation and debility of the ſolids induced from air paſſing to and fro, through the pulmonary veſſels, replete with ſuch noxious particles, muſt neceſſarily be inferred, and is juſtified by facts too well known to require any proof.

The medicines here propoſed are not of a nature to ſweeten and correct bad air, and make it fitter for reſpiration, which no doubt is obtainable by other means: their qualities are to correct and counteract the morbid impreſſion made on the animal ſyſtem from breathing a foul putrid air; and moderate, but not extinguiſhing the ſeptic ferment unavoidably increaſed beyond due bounds in the animal œconomy, by ſuch morbid impreſſion.

To correct the laxity of the ſolids and the acrimony of the fluids, continually under the impreſſion of ſuch prediſpoſing cauſes of diſeaſe; and preſerve the ſanitive qualities of the bile; which fluid, it is preſumed, is the main ſource of health, and genuine medicine of nature, is the leading object of the medicines propoſed.

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The action of every medicine, and conſequently the circumſtances claiming attention in its employment, are conſiderably varied by peculiarities in the habit in which it is given. What in this reſpect, therefore, is chiefly to be attended to in the uſe of our medicines, ſhall be briefly enumerated.

Few medicines from which any conſiderable advantages can be obtained in the cure of diſeaſes, are of ſuch a nature that they can, in every circumſtance, be exhibited without inconveniency. On the contrary, the greater activity any medicine poſſeſſes, the more reaſon there is to apprehend diſagreeable accidents from its being improperly uſed. When active medicines are therefore employed, it becomes, in every caſe, an object of particular attention, while we endeavour to obtain all the good effects, which may be derived from them, to avoid the bad conſequences, if any, which they are moſt liable to induce.

Theſe ends are to be obtained only by careful attention to many circumſtances. Stimulants are much more inconvenient in irritable habits, than they are in plethoric ones; or in thoſe in whom

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the force of the circulating fluids is very great. On this account, with patients in the vigour of life, evacuation may be ſometimes requiſite previous to the uſe of our medicines.

Some conſtitutions are affected by them, with very great eaſe, whether as acting on the alimentary canal or as entering the ſyſtem, and exerting their effects there.

In caſes therefore where the conſtitution of the patient is not previouſly known, theſe medicines are to be adminiſtered in the mildeſt forms, and to be begun with in the ſmalleſt doſes hereafter preſcribed; or in ſmaller, if thought neceſſary. When this precaution is uſed, they may be gradually increaſed to the full extent of the largeſt doſes preſcribed, and as much beyond them as the virulence of the diſeaſe may, in the judgment of the phyſician, be found expedient; and, in this manner, given with the utmoſt ſafety to the patient; and, when they have effected a cure, or a criſis, they may, with equal ſafety and certainty of ſucceſs, be joined to the bark, decoction of the woods, or other tonic medicines, in reeſtabliſhing the health and ſtrength of the patient. In ſome caſes, to gradually diminiſh the doſe

after the cure may be preferable to abruptly leaving off the medicine.

The principal thing neceſſary being to proceed with caution, and not to ſurcharge the ſyſtem with an unneceſſary quantity of medicines, by which the patient may be expoſed to the inconveniencies which, in a greater or leſs degree, accompany a too much increaſed ſecretion. In this manner of adminiſtering theſe medicines, the change produced in the morbid ſymptoms will always be a ſure guide.

There are few medicines, with regard to the operation, of which all practitioners are agreed. By a knowledge of the manner in which a medicine operates in curing a diſeaſe, we can alone be enabled to accommodate its uſe to particular circumſtances. He therefore who knows not only that a certain remedy will cure a particular diſeaſe, but is likewiſe acquainted with the manner in which it acts, in producing that effect, has at leaſt a double advantage.

The action of our medicines is ſometimes exerted on the ſtomach; when this is the caſe, the morbific matter is either expelled upwards or downwards, and not unfrequently makes uſe of

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both outlets, which may be encouraged as the caſe indicates. When the ſtomach and bowels are cleanſed out, they chiefly operate by perſpiration and urine. They often have a ſoporific, as well as a ſudorific effect, and by the reſt they procure greatly relieve the patient. Their anodyne, anti-inflammatory effects allay painful ſymptoms, and render them uſeful in cholic and painful diſeaſes; and their reſtrictive, gentle, ſtimulant, antiſceptic properties, make them beneficial in the ſcurvy and putrid bilious fevers.

From their various modes of operation and application, it may be readily concluded, that thoſe medicines are powerful remedies in the cure of many more diſeaſes: particularly when it is known that thoſe diſeaſes are not unfrequently removed without any ſenſible evacuation, as if they acted by a ſpecific anti-acrid power. When potently diaphoretic there is uſually a nauſea; and when they exert their influence on the urinary organs of ſecretion, the diſcharge is generally copious, and frequently critical.

When we firſt adminiſtered theſe medicines it was our cuſtom to premiſe an evacuant previous to their uſe, under a notion, that they would,

from their compoſition, have an undoubted tendency to bind the belly: and alſo, that a gentle vomit or purge was neceſſary to clear the alimentary canal, to give room to their more free and immediate exertion and entrance into the ſyſtem.

The violence of the ſymptoms common to a cholera morbus forbids the uſe of evacuants: hence moſt phyſiciants, *in warm climates*, where this diſeaſe is moſt frequent, have found it neceſſary to remove the urgent ſymptoms as ſpeedily as poſſible. For this purpoſe they adminiſter opium in form of thebaic tincture, from twenty to eighty drops, at the firſt attack of the diſeaſe; and the good effect of this treatment has now rendered it very general.

We ſoon found that evacuants need not neceſſarily precede the uſe of our medicines, except under the before-mentioned circumſtances of plethora, from their general tendency to act in the acrid, putrid, bilious ſordes, or any other offenſive matter lodged in the alimentary canal, and to remove it either upwards or downwards; conſequently could have no idea of their beneficial qualities in a cholera morbus, until their being given by miſtake in that diſeaſe had diſcovered it.

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From this we were led to give them in the cholic, and found them to prevent the ileus and inflammation, by relieving the ſpaſm. We found them equally efficacious in diarrhœa and dyſentery, where they were adminiſtered copiouſly, without the intervention of evacuants. Although the diarrhœa were of the worſt ſort, and of very long ſtanding, and the dyſenteries accompanied with malignant ſymptoms, they quickly overcame the fomes of the diſeaſe. And in thoſe that had proceeded from obſtructed perſpiration, they very remarkably diverted the flow of humours to the ſkin, by abating the irritation, and, as we preſume, contracting the mouths of the veſſels which empty their contents into the inteſtinal canal, in the diarrhœa; and in the dyſentery, by healing the erroſiom of the blood veſſels excoriated by the flux of acrid humours: and, laſtly, by their diſpoſition to ſtrengthen the habit.

The teneſmus, or conſtant inclination to go to ſtool, with the tormina, readily yielded to the powders inviſcated by a ſtrong jelly of ſtarch, and made up into a clyſter.

In the bilious, marſh, yellow, Bengal, African, and Weſt-India fever, remitting or intermitting;

raging in camp, hoſpital, ſhip, or priſon; whether accompanied with a diſeaſed ſpleen, or ſwelled, inflamed, or diſeaſed liver, or not.

In theſe kinds of fever no time is to be loſt; *whatever is to be done ſhould be done immediately, and in the beginning*: every mitigated period ſhould be watched with the cloſeſt attention, and not a moment neglected in which proper medicines may be given to ſecure a complete though ſhort remiſſion.

If we mean to make a ſudden and effectual ſtimulous of all the organs of evacuation, our medicines muſt be given in an increaſed doſe every repetition, which ſhould be proportionally frequent, as the urgency of the ſymptoms ſeem to require.

The ſtomach and bowels will be ſoon diveſted of their morbid contents, and the action of the medicine directed to the ſurface of the body and the urinary organs of ſecretion, and in general, an equable ſweat, reſt, and a remiſſion; the head relieved, and the pain and ſpaſm taken off.

The ſudden relief of ſuch troubleſome threatening ſymptoms, ſucceeded by refreſhing ſleep, increaſes and ſtrengthens the powers of nature to

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ſtruggle with and overcome the ſucceeding paroxyſms; and not unfrequently in the firſt inſtance induces a ſalutary criſis, and removes the fever.

The benefits derived in general from thoſe potent remedies are to counteract, extinguiſh, or expel the acrimony or fomes of the diſeaſe, frequently without any ſenſible evacuation, and commonly by a gentle diffuſive ſtimulous free from irritation, accompanied with a ſoft exhilerating glow, ſpreading from the ſtomach through the whole ſyſtem, exciting a refreſhing diaphoreſis, that brings on a remiſſion or criſis of the diſeaſe. And ſometimes evacuating by vomit, or by ſtool and urine; and at other times by a ſenſible increaſe of all the animal ſecretions, except thoſe of the ſalival glands, which they rarely affect, but are always ſalutary when they do; except when a ſcorbutic virus reigns. Previous to their removing ſpaſms of the worſt kind, they ſometimes effect the ſalival glands: in ſuch caſes this ſymptom indicates approaching relief. Their more general operation is an increaſe of the alvine, urinary, and cuticular excretions. Their not being of a nature to be neutralized or otherwiſe decompoſed in the firſt paſſages, they have a fairer chance; and by

their operation and effects, it is evident they do aſſimulate with the fluids and paſs into the ſyſtem undecompounded.

In painful, foul, ſpreading ulcers of long ſtanding, with thick edges, large funguſes, and an ichorous diſcharge, that had rather been aggravated than relieved by a courſe of mercury; and that had from their irritation and conſtant drain, worn out and emaciated the patient to the loweſt ebb, the effect of thoſe medicines were truly wonderful in calming the morbid irritability, procuring eaſe and reſt, and producing a ſalutary change in the ulcers. In many caſes of this nature their effects were immediate; in others more gradual, and, in moſt that fell within our obſervation, certain.

From their anti-inflammatory effect theſe medicines appear to be ſpecifics in the ſynochia or inflammatory fever: and though it ſhould then ſeem that they could not but be hurtful in the typhus-nervoſus, or low nervous fever; yet the contrary is founded on experience, they proving ſucceſsful in ſynochia, typhus-nervoſus, and typhus-putridus, or petechialis; ſo that they have turned out to poſſeſs, in a very eminent degree, the oppoſite, though very deſirable and highly ſalu-

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tary qualities of curing *debile*, anti-inflammatory, and alſo *febrile* inflammatory diſeaſes. Effects ſimilar to this are attibuted to opium, by Dr. Cullen in his "Materia Medica," who obſerves, that opium may be given as a ſtimulant in typhus fevers, becauſe the vis vitæ is very low; but when the remiſſions are diſtinct, it ſhould then be adminiſtered as a ſadative. If I dared venture to carry the theory of this great man any farther, I would ſay the ſame of all ſtimulants; that is, when applied to our bodies in any conſiderable degree, they become ſadative, and all ſadatives, in a low degree, may be conſidered ſtimulants.

Their extraordinary effects on the nervous ſyſtem, of which we have not had ſufficient experience to fully underſtand, could alone be ſufficient to recommend them to general uſe in all ſpaſmodic affections.

The recent and accurate trials made by an able practitioner* upon antiſpaſmodic remedies, to form a ſcale of their relative value, or efficacy in this very intereſting branch of the art of healing, ſerve to ſhew, that too much reliance

* *Francis Home*, M. D. Profeſſor of Materia Medica in the Univerſity of Edinburgh.

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ſhould not be placed in the preſent antiſpaſmodics in uſe, and ſhould put us upon the reſearch after others of greater efficacy and more general application in theſe diſeaſes.

Till better are found out and applied, we beg leave to recommend to the candour and liberality of practitioners in phyſic our medicines, which, as far as they have been tried, have turned out to be antiſpaſmodics leſs exceptionable and more generally uſeful than thoſe at preſent in uſe; and which have been fully inveſtigated by the unqueſtionable abilities and great opportunities that have fallen to the lot of the gentleman before alluded to. The concluſions which he has drawn from the trials made on a great number of patients, are here tranſcribed in his own words:—

It is but a melancholy retroſpect to view ſo many trials made with the moſt approved antiſpaſmodics, and to ſee ſo few cures performed by any one particular remedy. We ſee there is none in which we can always truſt, but muſt vary our medicines, as a new one will often ſucceed when others have before failed. This uncertainty of antiſpaſmodics depends not perhaps ſo much on

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the ſtubborn nature of ſuch diſeaſes, or on the weakneſs of the remedies, as on the want of accurate experiments, with all their circumſtances. This has been a great defect in the Materia Medica, has ſtopped the progreſs of medicine, and kept it in a ſtate of uncertainty; whereas, if the circumſtances of the diſeaſe, and of the exhibition of the remedy, had been handed down, certain and fixed general principles and rules muſt, ere this time, have taken place. To ſupply this defect, and point out a proper line for the improvement of medicine, I have collected the proceeding experiment.

Antiſpaſmodics are not all entitled to equal confidence. I know no author, however, who has ſettled their comparative merit; each phyſician is left to judge from his own experience; but in private practice, he may grow old without facts ſufficient. Were I, from the proceeding experiments, which are not a few, to make a computation of their relative value, I would arrange them into four claſſes, according to their powers. In the firſt, I would place the weakeſt, as the folia aurantiorum, the flores cardaminis, the artimiſia, the peonia, the viſcus queroinus, the extract of

the

the hyocyamus, caſtor, muſk, the cuprum ammoniacale, and electricity. In the ſecond, fear, camphire, the flowers of zinc, and bliſters. In the third, aſafœtida, æther, and mercury. In the fourth, bark, opium, and bleeding. Every one in this diſtribution, will judge as he has experienced. I may alter my opinion on further trials, as it is from theſe I have formed the preſent. It is good however to have ſome fixed, and it is eaſier afterwards to correct, than to ſettle at firſt, ſuch a comparative view.

One of the chief deſigns of theſe experiments was to diſcover the caſes and ſituations in which ſuch medicines might be moſt ſucceſsfully uſed. In this we have not been altogether unſucceſsful. We may obſerve, that moſt of theſe, beſides their primary antiſpaſmodic quality, poſſeſs ſecondary qualities, which have much influence on their effects and exhibition. Beſides ſome of them poſſeſſing laxative or ſudorific powers, which others do not, they may be diſtinguiſhed into the ſtimulant or inflammatory, and the ſedative or anti-inflammatory. Of the former ſort, are electricity, mercury, valerian, aſafœtida, Peruvian bark, opium, &c. Of the latter, are bleeding, epiſpaſtics,

tics, muſk, camphire, caſtor, æther, the floris cardaminis, the folia aurantiorum, the cuprum ammoniacale, the flowers of zinc, &c. The former muſt be chiefly uſeful in the debile anti-inflammatory ſtates; the latter in the febrile and inflammatory. The preceding experiments have confirmed this, and bleeding has been found one of the moſt powerful anti-hyſterics, when the habit of the body was inflammatory.

But particular antiſpaſmodics are ſuited to cure particular ſpaſmodic diſeaſes, from ſome other circumſtances, independent of theſe juſt now mentioned. Theſe experiments have ſhewn me the fact; but they have not diſcovered the cauſe or principles on which it depends. Æther will relieve one ſpaſmodic diſeaſe and not another, though both inflammatory. The flowers of zinc will cure an epilepſy, though not a convulſio.

Opium will eaſe an aſthma, though not a convulſio. Mercury will cure a triſmas, or ſpaſmos gulae, though not an hyſteria, convluſio, or aſthma. As there are topical ſpaſmodic ſtimuli, it is probable that there are topical anti-ſpaſmodics which relieve the irritation or irritability of certain parts only. But how they act is difficult to ſay.

We

We have hinted at the principle in mercury, though we own it is but an opinion. In the other antiſpaſmodics, I can form no idea that ſatisfies me. As the operation of ſuch bodies is exerted on the nervous ſyſtem, of which we know ſo little, we may never, perhaps, be able to fix their mode of operation. We may however, by a multiplicity of experiments, be able to fix the facts, and the diſeaſes and circumſtances to which particular anti-ſpaſmodics are beſt adapted; which would be of eſſential ſervice in the practice of medicine.

Theſe obſervations, founded on ſuch well directed experiments, muſt convince us of the neceſſity of introducing a ſpaſmodic remedy, more extenſively uſeful, and certain in its operation than thoſe commonly uſed. The fatal effects of the *locked-jaw*, ſo frequently occurring in warm latitudes, on amputations, and wounded nerves, and on board ſhips of war, and at naval and military hoſpitals, entitle every medicine of ſuperior efficacy to a full and fair trial, until medicines are diſcovered that may, with ſome greater degree of certainty, anſwer in the prevention and cure of thoſe depopulating maladies, which we are convinced muſt enſure ample reception among all

nations,

nations, to thoſe here propoſed; particularly thoſe nations moſt powerful in their fleets and armies, and moſt extenſive in their commerce, and foreign poſſeſſions, who are proportionably expoſed to a greater loſs of valuable lives, from the ravages made in their fleets and camps, by the epidemical diſeaſes common to thoſe ſituations, than from the horrors, havock, and calamities of war. And from the ſcurvy, bilious, and putrid fevers, which rage in long voyages, and hot climates, to which Europeans are alſo expoſed, whether deſtined for commerce, conqueſt, or ſettlement, in a much greater degree than from the united efforts of the common enemy.

Without abſolutely deciding, whether the ſcurvy is a putrid diſeaſe or not, or reaſoning upon the antiſcorbutic qualities of our medicines, or their mode of operation, when they have entered the ſyſtem, and how they may be ſuppoſed to perform the cure of this diſeaſe, when they have arived there, which is very uncertain in fact, and leads to ſtill more uncertain reaſoning, we ſhall paſs on to what is of more importance in a conciſe treatiſe like this, written to explain the action and

effects

effects of medicines; the introducing of which to general practice, in the cure of the ſcurvy at ſea, and in hot climates, as well as the other diſeaſes already enumerated, in which they have been alſo recommended, is a primary object.

Nor ſhould it be expected that we ſhould enter into the deſcription, uſe, application, and ſucceſs of the numerous medicines, that have been preſcribed for the cure of the ſcurvy, and ſucceed each other with the faſhion and theory of the times they were brought forward and exhibited in; much leſs ſhould it be expected that we ſhould condemn them to make way for the more general uſe of our own medicines; which we wiſh to ſtand or fall entirely upon their own merit.

So far from that, there are many of them we have a very high opinion of, and have the good of the patient ſo much more at heart, than the more ſucceſsful of our medicines, that we wiſh to combine them with the uſe of our own in all caſes where they may be thought admiſſible, as will be found in the practicable part of this little book; without the moſt diſtant intention of diſallowing their efficacy, or attributing the ſole cure of the

diſeaſe

diſeaſe to our medicines, when the credit ought to be ſhared with them.

Among thoſe moſt to be depended on are acids: every one almoſt is acquainted with them; the ſenſation that they excite is upon the recollection of every palate, and perceptible upon the organs of taſte, in a great part of our food, and a much greater part of our drink; therefore, we ſhall not enter into a particular definition of them here*.

It is to be found in the veſſels of every plant, and probably in the ſtomach of every animal. It is well known to chemiſts and phyſicians to be an inhabitant not only of the vegetable, animal, and mineral kingdoms, but likewiſe of the atmoſphere; and perhaps is no leſs uſeful than univerſal.

The progreſs of modern improvements in chemiſtry has been ſo great, that, from vital or dephlogiſticated air, united with inflammable air, all the various acids of vegetables are ſuppoſed to be producible; but it is not our intention to inſiſt on

* See acids, p.

this here. They correct the bile, neutralize alkalies, check putrefaction, allay heat, and quench thirſt; and may be ſo managed as to promote the fluid ſecretions, and correct the laxity of the ſolids, in a conſiderable degree.

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DISEASES IN HOT CLIMATES.

FEVERS.

Particular Obſervations on the Bile.

WE ſhall, in the courſe of this treatiſe, enumerate ſo many particulars of opium, and ſome other powerful drugs; the operation and effects of which have ſo great an affinity with ſome of the qualities of our powders, that ſo far as the powers of opium and thoſe drugs exert a ſalutary influence on the animal œconomy, they, in a moderate degree, preſerve a ſimilarity of effect and appearance in their operation with thoſe powders which immediately ends, when we come to conſider and ſum up the inconveniences that follow the frequent and extenſive uſe of theſe powerful drugs; therefore, we will enumerate ſome of the moſt ſtriking of them under this head.

The ſame may be ſaid of ſome of the principal

and leaſt active of the preparations of antimony, mercury, ſteel, flowers of zinc, bark, muſk, camphor, ſadative ſalt of borax, alkalies, acids, &c. &c. &c.

We have been under the neceſſity of drawing concluſions in favour of our powders, in the neceſſary direction for their uſe and application; which, to thoſe to whom it may appear to wear the garb of partiality, it is recommended to compare their efficacy in curing theſe diſeaſes, in the courſe of their practice, with the medicines that have been already employed in thoſe intentions.

And as the ſame obſervations will apply to moſt ſadatives, antiſceptics, diaphoretics, antiſpaſmodics, eccoprotics, and antiſcorbutic bitter and aſtringent medicines, the like trial will be equally applicable to them; which, we have no doubt, will remove the deepeſt rooted prejudices that could poſſibly be entertained againſt our medicines.

In the progreſs of ſuch uſeful and experimental trials, the unparalleled utility of our medicines, in their operation and effects on that univerſal corrector and regulating ſtandard of health, in the animal ſyſtem, the *bile*, will more and more manifeſt itſelf, in correcting the qualities, moderating the redundance, and ſupplying the deficiency of the bile; which will be a much better eulogium on our

our medicines than any thing we could advance in their behalf.

The uſefulneſs and neceſſity of the bile, for the preſervation of life and health, are ſufficiently known to every one who is acquainted with the rational and ſolid principles of phyſic. Its being found in every the minuteſt animal is ſufficient proof of this; for there is not a poſſibility of finding, in the whole extent of Nature, a ſingle inſect deſtitute of a bilious humour; and indeed the bile lodged in the body of animals is a real and genuine medicine, wiſely elaborated by unerring Nature, for preventing diſeaſes, deſtroying their cauſes, and correcting the faults and diſorders of the conſtitution; and, by means of its incomparable virtues and energy, animals are kept alive, and preſerved in an eaſy and comfortable ſtate of health.

Since the bile is ſo highly uſeful and efficacious in maintaining a ſtate of health in the body, and proving, as it were, a natural and univerſal medicine, it muſt of courſe follow, that when this liquor is rather faulty with regard to its quantity, or depraved by a receſs from its due temperature and craſſis, a ſure and unavoidable foundation for diſeaſes muſt be laid: ſince then many, and theſe too formidable diſorders, derive their origin from ſome fault of the bile, the principal virtue and

energy of medicines employed in curing them, ought to conſiſt in correcting this fluid, when peccant in quality, generating it when defective, or evacuating it when abundant in quantity: for, as the bile, when in its due ſtate, is juſtly to be accounted a fine and genuine medicine to the body, ſo we muſt readily grant that the moſt important of all other medicines are ſuch as are calculated for reducing this fluid to a natural and temperate ſtate.

The uſes of the bile is to attenuate the chyle, to blend the oliogenous parts of the blood with the aqueous, to ſtimulate the inteſtines; and, in part, change the acid of the chyle, and render it fitter to be aſſimulated with the blood. All theſe effects the cyſtic-bile produces in a greater, and the hopatic in a leſſer, degree.

The bile is a fluid of great importance with regard to the good or ill habit of the animal. We have already ſeen here it operates upon the chyle and blood; to which we may add, that it likewiſe aſſiſts in digeſtion, by acting as a ferment, and promoting the animal ſceptic proceſs.

A redundance of bile occaſions many terrible diſeaſes, which, according to the ſeat of the humours, their acrimony or vent given to them, will appear in the ſhape of a remitting or intermitting fever, a cholera morbus, or dyſentery.

Too

Too great an evacuation of bile, either upwards or downwards, robs the chylification of its main inſtrument. Hence it prevents digeſtion, ſecretion, excretion of the fæces, and produces an acid temperature, coldneſs, weakneſs, paleneſs, and ſwoonings. If the bile be prevented in its diſcharge into the inteſtines, it produces a jaundice.

* What do we generally mean by a bilious temperament? Is it that original conformation which diſpoſes one perſon to be greatly moved by cauſes that do not much affect another? This temper is certainly more prone to the paſſions, which are naturally attended with an exceſſive ſecretion of bile.

The ſource of ſenſibility, that fundamental part of the animal machine, is liable to very different conditions. It is influenced in a particular manner by heat and by cold; and this alteration, which it receives from climate, ſeems to be founded, in a great meaſure, on the diverſity of temperament and character which we diſcover in different nations.

The national character may certainly be altered extremely by moral cauſes, but the original

* Maclurg on the Bile.

ſtrong lines will always remain. When Livy ſpeaks of the inhabitants of Gaul, and of Spain, they are diſtinguiſhed by that very oppoſition of character, which has been remarked in them ever ſince. The ſame ſerioufneſs, ſolemnity, and ſteadineſs on the one hand—the ſame levity, ficklenefs, and impetuoſity on the other.

There is in one ſtate of this power in which the life of the animal is raiſed only a degree of that above vegetable: it is the effect of exceſſive cold, and happens to thoſe animals which, in the northern climates, ſleep during the winter.

If we may credit the accounts of them, they continue ſometimes ſix or ſeven months in a ſtate of torpor; the ſlow and feeble motion of the heart alone diſcovering ſome remains of life; and, during all this time, they take in no kind of aliment, and ſeem to have no ſort of excretion.

The ſceptic animal proceſs is ſo weak that their fluids do not ſuffer the ordinary degeneracy; and, conſequently, they neither require to be recruited by freſh aliment nor to have their moſt altered parts ſeparated.

The men who inhabit theſe climates are able, by certain precautions, to preſerve conſtantly the heat of their bodies at the ordinary ſtandard. Yet this does not prevent the cold from having certain effects upon them, both in diminiſhing their irritability,

bility, and in retarding, in ſome degree, the ſceptic animal proceſs.

It has been obſerved, that their pulſe is much ſlower than that of the natives of a hot climate; ſo that, in compariſon, the latter may be ſaid to be in a conſtant fever. And it is well known, that the ſeverity of their ſky denying them vegetables, they uſe a very putreſcent diet, conſiſting chiefly of fiſh, and yet are not ſubject to the *ſcurvy*, or any other putrid diſeaſe.

This conſtitution may ſhew that which is exquiſitely bilious, as it were by contraſt, for it is oppoſite. Here the irritability is augmented beyond the proper ſtandard, the pulſe is quicker, and the progreſs of the ſceptic animal proceſs, to which the bile owes its origin, is too much accelerated.—As the former ariſes from the effect of great cold on the conſtitution, this is naturally produced by exceſſive heat; and the bilious temperament is the common one in a warm climate.

But other cauſes, which affect the ſyſtem in a ſimilar manner, may have a tendency to induce this conſtitution. Such are, probably, a great and continued agitation of mind, either from the paſſions, buſineſs, or ſtudy; exceſſive and irregular muſcular motion; a diet too ſtimulating, and without a juſt preparation of vegetables; the abuſe of warm liquors; a too conſtant confinement to the hot

and

and close air of a chamber, &c.; the residing in a large and populous city.

The bilious constitution seems not to be natural to this climate, where the temper of the people is as distant from the torpid strength of the inhabitants of the north, as from the too delicate and sensible habit of the southern nations.

Their moderate irritability, joined with a sufficient share of vigour, is connected with that state of the powers of circulation, in which red blood seems to be formed faster than it degenerates. Hence their full and sanguine habits; so that an Englishman may generally be distinguished from the southern people by the *purpureum lumen* which shines upon his countenance.

Yet we frequently see this sanguine plethora exchanged for a bilious one, in consequence of an alteration which the constitution suffers from a hot climate. Perhaps a similar change may be induced by other causes which I mentioned; to some, or all of which, the people, who, in this country complain most of a redundancy of bile, are generally subject.

We acknowledge that we are exceedingly ignorant of the manner in which the fluids are changed in digestion, circulation, or secretion; for we are acquainted with no analogous process that can produce the same effects.

There

There muſt always then be ſomething obſcure and unſatisfactory in our idea of theſe operations. With reſpect to the redundancy of the bile, we only know, that in hot climates, where it is moſt remarkable, and as it were, univerſal, it is connected with a greater irritability in the nervous ſyſtem, a quicker circulation, and a greater tendency in the fluids to putrefaction.

And the firſt of theſe affections ſeems to be that which is fundamental; for, if it be true that the animal body preſerves conſtantly the ſame temperature, in various conditions of the atmoſphere, its fluids may be conſidered as expoſed always to the ſame degree of warmth.

The external heat, in this caſe, can only affect the body as a ſenſible and irritable machine; and its other effects muſt depend upon the change produced in the nervous ſyſtem. And we find that when this ſyſtem is affected in a ſimilar manner, that is, excited in an extraordinary degree by other cauſes, the circulation and the ſceptic animal proceſs are both accelerated.

In conſequence of violent paſſion, of exceſſive muſcular motion, of ſtrong convulſions, in ſeveral inſtances, quoted by Dr. Haller, a great tendency to putrefaction ſeemed to have been very ſuddenly induced.

On the other hand, in the caſe of torpor and low

low excitement of this ſyſtem, the ſceptic animal proceſs ſeems to proceed more ſlowly than ordinary. It is remarked by Dr. Haller, that all the wonderful accounts of people who had lived a long time without taking in any aliment, relate to perſons whoſe irritability was conſiderably impaired: they were either melancholy, fooliſh, ſtupid, lethargic, or inſenſible, from ſome evident injury of the nerves.

The excretions of the bile are as much appendages to the alimentary canal as the liver; and, being intimately connected with the former organ by their function, are ſo conſtituted by nature as to ſympathize with its different ſtates.

A nauſea, by whatever cauſe excited, the action of emetic or purgative, ſeems to be always attended with a temporary increaſe of the biliary diſcharge. But theſe agents are ſo far from producing the conſtitution we are ſpeaking of, that they are to be reckoned at leaſt among the palliative remedies.

Yet, as a redundance of bile is generally connected with a diſordered ſtate of the alimentary canal, it may be doubted whether this is not always the primary affection and cauſe of the former. The agreement, however, of ſo many facts, tending to ſhow that this ſtate of the ſecretion is frequently the effect of a certain diſpoſition of the circulating fluids, renders it equally probable that the

the redundancy of bile is often the primary affection; and by the proviſion of nature excites that nauſea which conduces to its evacuation.

Practical Obſervations in the Prevention and Cure of Diſeaſes to which Europeans are ſubject in Hot Climates—General Obſervations on Fevers, &c.

THE moſt ſimple definition of a fever is, that it is an increaſed velocity of the circulation of the blood, without any remarkable diſeaſed condition of the fluids or the ſolids of the body; ariſing merely from the increaſed action of the ſolids on the fluids, and ſubſiding on the ceſſation of motion or violent exerciſe; and, taken more extenſively, may be properly defined an indiſpoſition of the body, commonly attended with an increaſe of heat and thirſt, and often with an headach; more frequently with a very diſtinguiſhable quickneſs of the pulſe; or at leaſt a great change from its natural ſtate: and, for the moſt part, with various other ſymptoms of diſtreſs, which in a few days terminate in a recovery, a remiſſion, or death.

Fevers may, with propriety, be claſſed into intermitting, remitting, and continual. An intermitting fever leaves the patient free from all ſymptoms of the diſeaſe, during its abſence or remiſſion. A remitting fever has irregular or imperfect intermiſſions. A continual fever has not any perceptible intermiſſion.

Each of theſe fevers, whether intermitting, remitting, or continual, may be either attended with the uſual and gentle ſymptoms, or they may be accompanied with violent, dangerous, and fatal ſymptoms, and hence be denominated malignant.

In all theſe three kinds of fevers, if the bile, either pure or mixed, be copiouſly or frequently evacuated by vomit or ſtool, the fever is ſaid to be bilious; and there is ſometimes a pain attendant on that evacuation felt on the ſeat of the liver.

A yellow colour of the ſkin is obſerved not only in common bilious, but frequently alſo in other fevers: ſometimes denoting, as in contagious fevers, their malignant nature; at other times, as in ſome Weſt India fevers, an univerſal diſſolution of the blood and humours; and frequently accompanying gentle diſcharges of bile and a diſeaſed liver.

Every fever is a ſtruggle of Nature to relieve herſelf from ſomething oppreſſive; therefore, we ſhould

ſhould always aſſiſt her endeavours by the moſt proper means that reaſon and experience ſuggeſt. And though we ſhould be very cautious *in theſe kingdoms*, in the beginning, eſpecially how we proceed in ſpurring on or bridling her efforts, till we have well conſidered the nature, quantity, and quality of the diſeaſe, and the conſtitution of the patient; yet, *at ſea*, and *in thoſe hot climates*, where fevers ſo ſoon can degenerate into putrid or malignant, no time is to be loſt, *for whatever is done, ſhould be done immediately, and in the beginning*, where fevers are ſo rapid in their progreſs and fatal in their effects: when the incumbent air at ſome ſeaſons is ſo loaded with putreſcent matter, and the habit, from inhaling and abſorbing its noxious particles, ſo diſpoſed to putrefaction, that a ſlight ſcratch in ſome becomes a ſpreading ulcer.

The general Mode of exhibiting the Antiſebrile Medicines, with particular Obſervations on Fevers.

IN every fever the pulſe becomes quicker than natural, and the functions of the body more or leſs impaired or vitiated.

The

The cauſes of fevers then will be ſuch as by their irritation can quicken the circulation and excite ſpaſmodic contractions in the ſeveral parts of the body. And,

Theſe we may diſtinguiſh in a twofold manner, into general and particular.

The general or epidemic cauſes of fevers are ſuch as may affect a whole city, country, army, fleet, &c. and, for the moſt part, depend upon ſome putreſcent or infectious particles lodged in the air; or, upon its manifeſt qualities, ſuch as its heat or coldneſs; its moiſture or dryneſs, and the like.

The particular cauſes of fevers, or ſuch as will affect individuals only, we may refer to three claſſes*, as,

I. To a purulent fomes within the body, from confined matter, the conſequences of ſuppurations;

II. To a putreſcent, acrimonious ſtate of the juices, from a putrid fomes of any kind; And,

III. To obſtructed perſpiration.

From the firſt claſs, fevers of the hectical and colliquative kinds will derive their origin; from the ſecond, fevers of the putrid or malignant kind;

* Dr. Hugh Smith.

and

and, from the third claſs, or obſtructed perſpiration, according to the habit of body and conſtitution of the patient, either the acute inflammatory, the low nervous, the rheumatic, or the intermittent fever.

The curative indications in fevers in general may be reduced to three:

The firſt to correct and expel the cauſe which, by its irritation, had given riſe to the fever.

The ſecond will depend upon proper management and regulation of the powers of nature, that the febrile impetus ſhould not prevail beyond due bounds, or flag, too much for the proper action of the febrile matter.

The third will conſiſt in providing for the relief and mitigation of the moſt urgent ſymptoms.

It has long been a received maxim in phyſic, that if the cauſe be removed the effects will ceaſe.

Our attempts then in fevers ſhould be directed to correct or expel the cauſe of the diſeaſe. Hence if a purulent or putreſcent fomes in the habit ſhould have given riſe to the ſymptoms, they are to be removed or corrected by their particular *antidotes:* but as the cauſe, by far the moſt frequent, depends upon obſtructed perſpiration, it becomes a matter of moment in the cure of fevers to reſtore the excretion and expel the retained acrimonious humours which had occaſioned the diſeaſe.

For this purpoſe, eſpecially in the beginning of

a febrile complaint, ſuch medicines as promote perſpiration and expel the morbid acrimony ſhould be reſorted to; among which the antimonial preparations are ſaid to be the moſt ſpeedy in their effect.

The ſecond indication, viz. that of regulating properly the febrile impetus, will become a matter of moment in the cure of fevers; as the diſeaſe itſelf rightly moderated, and reſtrained within proper bounds and limitations, has been reputed the beſt remedy for the coction and expulſion of the morbific cauſe; for art can only avail in regulating properly the powers of life and the circulation, that the febrile impetus may not ſo much prevail, as by the increaſed circulation to prove fatal to the body; or, on the contrary, that the powers of nature may not ſo much languiſh and flag, that there ſhould be wanting the *vis vitæ* for the proper coction and expulſion of the irritating fomes. To lower the impetus of a fever, evacuations and our medicines will be adviſable; to promote and increaſe it, and keep up the *pabulum vitæ*, our medicines, aſſiſted with aromatics of different kinds, viz. ſaffron, caſtor, camphor, wine, and the like.

The ſymptoms moſt frequently troubleſome in fevers are as follow:

In the beginning a ſenſe of coldneſs and ſhivering, ſucceeded by heat; a nauſea and vomiting; thirſt, anxiety, a diarrhœa, petechiæ, profuſe ſweatings, watching,

watching, delirium, comatoſe affections, and convulſions.

Theſe, as being the effects of fever, as that abates will frequently ceaſe; but, if they ſhould require any particular care, are to be attempted by removing and weakening the cauſe which had produced them.

The ſymptoms in fevers will depend either upon an inflammatory or a ſpaſmodic affection of the ſeveral organs, a quickened circulation, or too denſe and viſcid a ſtate of the fluids.

The *coldneſs* and *ſhivering* which for the moſt part accompany a fever at its firſt onſet, will be owing to a ſpaſmodic ſtricture of the ſmall capillary veſſels.

The heat which ſucceeds will depend upon the increaſed and quickened circulation; or, as is ſometimes the caſe, in the putrid fever, upon an inteſtine motion, or putreſcent fermentation in the blood and juices.

As heat generally ſucceeds the ſhivering and coldneſs, it is not often that the cold fit will require a particular cure. If any medicines ſhould be neceſſary, ſome gentle ſtimulating cordial; ſuch as a little warm wine, with ſome ſuitable aromatic, may be expedient.

The heat is to be mitigated by abating and removing its cauſe: if from an increaſed circulation, by evacuations and antiphlogiſtics; if from a putrid

cauſe, by antiſeptic and gentle diaphoretic medicines, which are two of the ſanative properties of our medicines: and ſuch are the vegetable and mineral acids, the neutral ſalts, the bark, with proper cordials, and the like.

A *nauſea* and *vomiting* will be owing either to an acrimonious, putrid, bilious matter, or ſordes, collected in the ſtomach and firſt paſſages, vellicating their coats, and irritating to excretion: or to ſlight convulſive motions, excited in the ſtomach and neighbouring viſcera, by a determination of the febrile cauſe to theſe parts, is ſuppoſed to be beſt relieved by an antimonial emetic, or ipecacuanha, afterwards Riverius's antiemetic draught may be given to advantage.

Take of ſalt of wormwood ℈j.
Lemon juice ʒſs.
Cinnamon water, ſimp. ʒj.
Sweeten with lump ſugar to the palate.

This draught to be taken every four hours; to this may be added a few drops of liquid laudanum, or a warm cordial aromatic, as occaſion may require.

An *anxiety* may be occaſioned by any cauſe which can impede the circulation through the lungs, and prevent the free egreſs of the blood from the ventricles of the heart: this then will depend either upon an inflammatory or a ſpaſmodic affection of the lungs. When inflammation is the cauſe, the antiphlogiſtic

antiphlogiſtic regimen, and our powder, No. 2, will be neceſſary: but, when owing to ſpaſm, the warm cordial antiſpaſmodic medicines, properties which *our medicines* poſſeſs in an eminent degree, with bliſters and ſinapiſms, will be moſt expedient.

When an eighth or a fourth of our antifebrile powder is adminiſtered, give four ſpoonfuls of the following julap with it every four hours:

Take of camphorated julap
And cinnamon water, ſimp: of each ℥iiij.

A *diarrhœa*, in fevers, may be owing to various and different cauſes; either to acrimonious and putrid ſordes collected in the ſtomach and firſt paſſages, which, deſcending into the inteſtines, irritate to excretion and a diſcharge of their contents, or to a determination into the inteſtines of ſome of the moſt acrimonious or putreſcent particles of the fluids, which ſhould have paſſed off by the other outlets, as the ſkin or kidneys: or again, it may be ſometimes critical; in which caſe it will often prove ſalutary, and ought not to be ſuddenly checked. For the relief of this ſymptom an emetic of ipecacuanha will be adviſable; and this, unleſs in caſe of extreme weakneſs, may be given at any time, or in any ſtage of the fever. The opiate, aſtringent, and cordial diaphoretic remedies, to allay the irritation and divert the flow of humours to the ſkin, will be

likewiſe neceſſary, and may be taken by the mouth; or, as is frequently found more efficacious, injected by the anus clyſterwiſe. An eight or quarter part of our antifebrile powders, No. 1 and 2, alternately repeated every four or ſix hours, waſhed down with four or ſix ſpoonfuls of the above julap; or half a paper of each, made into a clyſter, with half an ounce of tincture of Japonica, and four or ſix ounces of warm water, in which has been diſſolved half an ounce of gum-arabic, to be repeated as occaſion requires, will eminently anſwer the intention.

The *petechiæ*, or *exanthemata*, which ſo frequently break out upon the ſkin in febrile diſeaſes, may be either critical or ſymptomatical. In the ſmall-pox, and other eruptive maladies, fevers are frequently critically terminated by the eruption; but in many other caſes, as in the malignant fever, and the like, they appear as ſymptoms only, and neither leſſen nor increaſe the diſeaſe.

For the remedy of petechiæ in general, it will rarely happen that any particular regimen or method will be required diſtinct from the fever itſelf, as the whole that will be required is properly to moderate the febrile impetus; and as the fever abates the petechiæ will gradually diſappear.

Profuſe ſweatings may be either critical or ſymptomatical: if not critical, they often prove very

very injurious, by weakening the patient, and depriving the blood of its thinner and more aqueous parts.

A *ſymptomatical ſweating* may ariſe from a two-fold cauſe, and depends either upon too increaſed and rapid a circulation, or upon too relaxed a ſtate of the ſolids, and a thinneſs and a diſſolution of the fluids. Hence, at the latter end of a fever, in a weakened habit, colliquative ſweats will frequently come on, which tend greatly to weaken the patient and impede his recovery. If an increaſed circulation, in the beginning of the fever, ſhould have given riſe to this ſymptom, blood lettings and antiphlogiſtics have proved the beſt remedies to reſtrain the excretion; but in the colliquative ſweats, which happen at the latter end of a low fever, the tonic and bracing medicines are the only ones to be depended upon, and in particular the bark.

Take of the antifebrile powder, No. 1, grs. v.
Conſerve of hips ʒj.

Make this quantity into a bolus, to be taken at once, and repeated every four or ſix hours; half an hour after the taking of each bolus, give the following draught:

Take of the decoction of bark ℥ij.
Syrup of quinces two or three ſpoonfuls:
Shake them well together.

Watchings, or want of reſt, in fevers, are to be relieved in a two-fold manner: by abating the cauſe of the reſtleſſneſs the irritation, and unuſual contraction and tenſion of the meninges and nervous febrillæ of the brain—or by adminiſtering thoſe medicines which allay irritation, and which we know would be productive of ſleep in a healthy body. For this intention, opiates in various forms ſhould ſeem to claim the firſt place, though in general, and even when opiates fail, the antifebrile powders, No. 1 and 2, taken alternately in any convenient vehicle: a quarter of a paper every four hours or half a paper of each made up into a clyſter, and repeated as occaſion requires, will be found the moſt certain and effectual remedy.

A *coma*, or conſtant drowſineſs and inclination to ſleep, may be occaſioned by every cauſe which can compreſs the brain, and prevent the nerves from properly exciting their influence in the production of the animal actions; ſuch as a ſizy inſpiſſation of the blood, obſtructing or ſtagnating in the brain or its meninges; alſo a ſpaſmodic ſtructure of the dura and pia mater, and their appendages, impeding the free circulation of the fluids through the veſſels in the encephælon.

For the relief of comatoſe affections, we may in general obſerve, that the volatile ſtimulating, cephalic medicines, with bliſters and ſonapſiſms, will

will moſt avail: under ſome circumſtances, motives and purgatives may be uſeful.

Take one paper of the antifebrile powder, No. 2,
White bread ℥iiij.
Cows' milk ℥vj.
Flower of muſtard ℥iſs.

Slice the bread into the milk, and when it comes to a boil, take it off, and mix in the muſtard: divide it into two poultices; and, as applied to each foot, ſtrew half of the paper of the antifebrile powder on the top or ſurface of each poultice: remove it in eight or twelve hours according to the effect produced.

Delirium, in fevers, may be owing to an unequal or interrupted circulation through the brain and its meninges, and an irregular diſtribution of the nervous influence.

This effect in the different ſpecies of fevers will ariſe from different cauſes; as in the acute fever it will depend upon an inflammatory irritation, and in the low nervous fever upon ſpaſmodic affections in the encephælon, principally perhaps the coverings of the brain: or again, a delirium ſometimes ariſes from an affection of the ſtomach, and ſordes collected there; ſometimes alſo from weakneſs.

A *delirium* is to be removed by abating the cauſe. If from inflammation, or too increaſed an impetus

petus of the circulation, by blood lettings and the antiphlogiſtic regimen; if from ſpaſms and too languid a circulation, which indeed are the moſt frequent cauſe, it will be expedient to keep up the circulation, and reſolve the ſpaſms, by the cordial cephalic and antiſpaſmodic remedies; muſk caſtor, camphor, ſaffron, &c.; but above all by ſinopiſm and bliſters joined to the free uſe of our antifebrile, antiſpaſmodic, anodyne powders.

Take of the antifebrile powder, grs. vx.
Conſerve of roſes, ʒiſs
Syrup of ſaffron as much as is ſufficient to make the maſs into three boluſes.

One of which is to be given every four hours, taking after it four ſpoonfuls of the following julap:

Take of camphorated julap and ſimple cinnamon water, of each ʒiv.
And ſyrup of ſaffron ʒiv.

Shake them well together, and give four ſpoonfuls of this julap, or mixture, after each doſe of the bolus, and repeat it two hours after.

Take of the antifebrile powder, No. 2, grs. xxx.
White bread ʒiv
Cows' milk ʒvi
Flower of muſtard ʒiſs.

Make

Make a poultice, to be applied to the feet, of bread and milk and muſtard, then add the antifebrile powder, previouſly blended with a little of the flower of muſtard, and let it remain on the feet for ten or twelve hours.

Sometimes where a delirium is unattended with a ſtupor, opiates may be of uſe; and when an affection of the ſtomach ſhould have given riſe to this ſymptom, a vomit will be the beſt remedy.

Convulſions and *twitchings* of the *tendons*, the almoſt conſtant attendants in the laſt ſtage of the fever, will depend upon ſome irritation or injury done to the brain, or its coverings; from preceding inflammations, ſuppurations, and the like; alſo, from extreme weakneſs, from inanition, and are ſometimes called ſpaſms. They are an involuntary or morbid contraction of any muſcle or muſcular part, and are often owing to the paſſions of the mind, an emptineſs of the veſſels from profuſe evacuations, or to a weakneſs and laxity of the nervous and muſcular ſyſtem.

Spaſmodic complaints are ſometimes attended with pain, and others not.

A ſpaſmodic is to be diſtinguiſhed from an inflammatory pain, by an attention to the pulſe, and the nature and effects of the pain itſelf: the pulſe in an inflammation is always quicker than natural, and generally full, hard, and tenſe; the pain likewiſe

wiſe is equable, throbbing, and unremitting: but in a ſpaſmodic affection the pulſe is often a natural one, and the pain is mitigated at intervals, and returns more violently by fits.

In painful ſpaſms opiates claim the firſt place, and ſhould be given in large, and frequently repeated, doſes; muſk, caſtor, aſafœtida, and the like, with warm cordial ſtimulants. The cauſes of deliria and pervigelia may likewiſe prove the cauſe of convulſions, which indeed generally attend or ſucceed to theſe ſymptoms, when violent, or of long duration.

Take of the antifebrile powders, No. 2, grains xv.
Rectified oil of hartſhorn, x drops,
And as much ſoft extract of liquorice as will be ſufficient to make them into three pills; one of which muſt be given every four hours.

If this form ſhould prove inconvenient,

Take of the antifebrile powder, No. 2, grains xx.
Rectified oil of hartſhorn, xv drops,
Oil of aniſeeds, xxv drops to xxxx.
And make them into an electuary with conſerve of roſes.

This quantity may be given in four or ſix doſes, as the urgency of the ſymptoms may require, in a mucilage of gum-arabic, to reduce it to the conſiſtence of a bolus, at intervals, of four, ſix, or eight hours.

When

When theſe medicines cannot be taken in at the mouth, they muſt be injected clyſterwiſe, and applied with a poultice of bread and milk, &c. to the feet.

Take of the antifebrile powders, No. 1 and 2, of each half a paper.
Of mucilage of linſeed, or gum-arabic vi ℥.
Rectified oil of hartſhorn viii drops.

Inject it warm through a pipe of a bore ſufficiently large to admit the powder to paſs into the rectum, with the fluid part of the clyſter. (For the poultice, ſee page 25.)

The Bilious, African, Weſt Indian, Bengal, Marſh, Ship, and Yellow Fever,

GENERALLY comes on ſuddenly, and begins with a ſenſe of debility, and a very great lowneſs of ſpirits. Theſe ſymptoms are attended with a greater or leſs degree of chillineſs, a giddineſs, nauſea, pains in the head and loins, and trembling of the hands: the countenance is pale, or has a yellow caſt; the ſkin is commonly dry, the eyes dull and ſometimes yellow; the pulſe quick

quick and ſmall, and the breathing generally difficult. As the paroxyſm increaſes, the nauſea becomes more violent, or there is a vomiting at firſt of green offenſive bile, and afterwards of black diſſolved blood, reſembling the grounds of coffee, which is ſucceeded by bleeding at different parts of the body, a phrenzy, an univerſal gangrene, and death. Sometimes bile is alſo voided by ſtool, the tongue becomes foul, a delirium follows, a ſlight moiſture appears on the face, and from thence ſpreads over the ſkin, and a remiſſion enſues. On the fever remitting, the pulſe uſually returns to almoſt its natural ſtate. This is the mildeſt degree of the fever; but, when the diſorder gains ſtrength, or is very violent, the remiſſion is ſcarcely obvious, and is immediately followed by another paroxyſm, wherein all the ſymptoms are increaſed: the mouth, teeth, and inſide of the lips, are not only covered with a black cruſt, but the tongue becomes ſo dry and ſtiff that the patient's voice can ſcarcely be heard.

And when the diſeaſe proves fatal, the matter of the different excretions becomes almoſt cadaverous, the ſtools are involuntary, the pulſe quick, ſmall, and irregular; a cold ſweat is diffuſed over the whole body, the face becomes convulſed, a *ſubſultus tendonum* and convulſions cloſe the ſcene.

Some

Some epidemic fevers are originally putrid; others, though ſometimes ariſing from common cauſes, degenerate by continuing beyond a certain time into a putrid ſtate, eſpecially when bilious humours prevail. Though contagion is ſaid to be the general cauſe of putrid and malignant fevers, yet the bad management of inflammatory and nervous fevers is a very frequent one. Fevers of this kind are ever attended with conſiderable danger, even when the ſymptoms wear a favourable appearance.

A griping in, and a ſwelling of, the belly, are ſometimes early ſymptoms: whenever they occur, if they abate not in proportion to the ſtools, a mortification takes place in the bowels, and the event is fatal.

When a perſon, upon his firſt arrival in the Weſt Indies, or any other country between the tropics, is attacked with a fever, no phyſician can tell what ſymptoms may occur in its progreſs; however mild it may appear in the beginning, yet it will often afterwards be attended with diſcharges of bile or with a jaundice, or with ſymptoms of the moſt malignant nature. It is therefore always neceſſary, eſpecially during a ſeaſon of prevailing ſickneſs, to endeavour by the moſt efficacious means, to bring the fever as ſoon as poſſible to a remiſſion, that the bark may be adminiſtered without delay.

It is to be conſidered how far the violence of the fever, in its firſt attack, will admit of bleeding. A few ounces of blood, taken from the foot, has ſometimes been found to relieve the pain of the head; but bleeding is in general to be uſed with great caution, and the repetition of it with ſtill greater in thoſe climates.

The chief objects of attention in all ſuch fevers, are the contents of the ſtomach and inteſtines. Immediately upon the patient's firſt complaint, and during the firſt hours of the fever, while perhaps he is only chilly, or complains of alternate fits of heat and cold, the ſtomach and inteſtines ſhould be cleanſed, either by a vomit of emetic tartar, by a purge of manna with tincture of ſenna, or by an oily and purging clyſter.

The patient, immediately after cleanſing the ſtomach and inteſtines, eſpecially if the ſkin be moiſt ſhould take an eighth, or a quarter part of a paper of the antifebrile powder, No. 1, which ſhould be repeated every four or ſix hours, followed by the following draught:

Take of tinctura amara ʒ ij.
Simple cinnamon water ʒ ij.
Oil of peppermint from viii to xv drops.
Syrup of lemon juice ſufficient to make the draught palatable.

According

According to the ſtate of the ſtomach and the urgency of the ſymptoms, the quantity of the antifebrile powder may be increaſed or diminiſhed, taking care that the ſtomach is not irritated or offended; to prevent which, eſpecially if there be a tendency to vomit, a few drops of liquid laudanum may be added to the above draught; which, in this caſe, is not to be given after the ſecond doſe of the powder, until the powder has remained on the ſtomach half an hour. The antifebrile powder, thus managed, will probably give the bowels a thorough cleanſing, produce an equable ſweat, and the patient will have a mitigation of the ſymptoms in twenty-four hours at moſt. Immediately upon the remiſſion throw in the bark, if no ſymptom forbids.

Moſt antimonials, notwithſtanding every precaution, prove unexpectedly violent in their operation in ſome habits: the beſt means of checking their virulence is an opiate, which has not always reſtrained the evacuations already too violent. This inconvenience, and the danger attending it, is obviated by uſing the antifebrile powders, in the manner here recommended; which, when other aſſiſtance cannot be had, may be adminiſtered with a crumb of bread in the form of a pill; or in a bolus or electuary, with any jelly, conſerve, or mucilage, it receiving little if any improvement

from its junction with other medicines, than being rendered more agreeable to different palates.

It has been uſual to give Dr. James's powders, or the *emeticum mitius Boerhaviia*, and other antimonials in the conſerve of hips, except when there was a diarrhœa or too frequent ſtools; in which caſe it was adminiſtered in the London Philonium. Although in one inſtance we have directed a few drops of laudanum; yet ſuch is the ſadative, pacific property of the antifebrile powders, that inſtances will but rarely occur of their wanting the addition of an opiate, or any other whatever; as it does not, like the above antimonials, irritate the ſtomach and bowels: *nor does the antifebrile powders admit of the addition of alkalies and mineral acids*, which, inſtead of aſſiſting, would impede, or, at beſt, render their operation doubtful.

Their general effects have been touched on in the introduction, and more particularly explained in the progreſs of this eſſay, and will be further illuſtrated when we come to treat of the ſcurvy.

The *diet* and *drink* of the ſick, &c. is a neceſſary attention. The patient's drink may be pure water, barley water, or toaſt and water, acidulated with lemon juice, cream of tartar, or ſpirit of vitriol. The air in the patient's room ſhould be kept as pure and cool as poſſible; and he as much expoſed to it as he can well bear.

As

As the fever advances, becomes more putreſcent, and the patient debilitated; no food muſt be allowed that has not a tendency to acidity, and a plentiful dilution with ſmall red wine, old hock, and orange or lemon juice mixed with barley water, muſt be admitted; as alſo the free uſe of acids, London porter, and ſmall beer.

Some phyſicians have their patients carried into the open air (as is the practice in the ſmall-pox) during the height of the fever, or otherwiſe expoſed to it; particularly when profuſe colliquative ſweating is brought on by bad management; and have by this treatment obtained a favourable change ſooner than could otherwiſe be expected, with which, a free uſe of the bark and cordial liquors, they have rarely failed effecting a cure.

Towards the decline of all fevers, as to what kind of food is moſt proper, the taſte of the patient is generally the beſt guide. However, the diet ſhould be light, but nouriſhing; animal food of the eaſieſt digeſtion, red port, Teneriffe, and Madeira wine alone, or properly diluted, may be allowed in moderation. A due admixture of vegetable and animal food is the moſt digeſtible to people in health. Scorbutic and putrid habits require acids, wine, and other antiſeptics.

The antifebrile powders, given at an early period of the fever, reduces the febrile impetus, re-

lieves the head, procures ſound and refreſhing ſleep, a free equable perſpiration, immediate eaſe, and a remiſſion.

After a remiſſion of twenty-four hours, a return of the fever is to be expected, unleſs a ſufficient quantity of the bark has been taken, or the uſe of the antifebrile powder followed up. In this caſe, if the head-ach be violent, or the patient threatened either with a delirium or coma, a bliſter ſhould be applied to the back *. Recourſe muſt again be had to the bark, as ſoon as ever the fever leaves the patient; and if much weakened by proceeding fits, an eighth part of a paper of the antifebrile powder; that is, from two and an half to three grains ſhould be added to each doſe of the bark.

Nine parts out of ten of the bark uſually uſed in theſe fevers may be omitted by adminiſtering it in this manner with the antifebrile powder, without leaving abdominal obſtructions or dropſies; and in nine caſes out of ten, this fever may be cured by the alternate uſe of theſe powders alone, properly continued to prevent a relapſe, when the cure has been ſudden. It is often neceſſary to ſave the bark as much as poſſible in the navy and army: it may become ſcarce during a war, or fail us from other accidents; and we ought to remember, that

* See page

the

the bark, when not uſeful, may not always be entirely innocent.

When the fever continues for ſeveral days, and the patient is in a doubtful ſtate of recovery, comatoſe and inſenſible, with a continual ſtupor on the brain, and a violent ſtruggle and oppreſſion of the vital organs, give a quarter of a paper, about five grains, every two hours, with four to ſix ſpoonfuls of the julap, No. until a whole paper is taken, which in moſt caſes will by that time operate either by vomit, ſtool, or urine, or bring on a copious ſweat, reſt, and an immediate alteration of the ſymptoms, reſtore the ſenſes, and recruit ſinking nature.

When the reſpiration is laboured, an inſupportable load in the precordia, with a violent and fixed pain in the ſtomach, or any of the abdominal viſcera, with great languor and debility. All theſe ſymptoms are preſently relieved by the antifebrile powder; the putrid ſordes collected in the ſtomach and bowels ejected upwards or downwards, and the ſpaſm removed from the region of the lungs; a remiſſion, and ſometimes a ceſſation of the fever obtained. Although a free reſpiration is reſtored, the bark is not to be too haſtily adminiſtered, for fear the patient ſhould relapſe into a difficulty of breathing. An eighth part of a paper of the powder, repeated every four, ſix, or eight hours, will

be ſufficient till the remiſſion is obtained: half this quantity in the morning, and the eighth of the paper at night, may be perſiſted in for ſix or eight days, or until the fever go off. In both of theſe caſes, the antifebrile powder, No. 2, is to be uſed: and when the fever has gone off, the bark may be reſorted to with ſafety, and will be ſufficiently efficacious in a leſſer doſe, and a few repetitions, if accompanied with two or three grains of the powder, No. 1, than the bark given in an increaſed doſe, and much more frequently repeated.

In moſt tropical countries there are, properly ſpeaking, but two ſeaſons in the year; the wet and the dry; the former is commonly of about four months duration, which is a continual ſeaſon of ſickneſs among the European reſidents, but not in that degree that new-comers are affected; the natives themſelves rarely eſcaping the ravages of diſeaſe, but in a leſs degree. For many months of the dry ſeaſon moſt parts of theſe countries are equally healthy and pleaſant.

The rainy ſeaſon at the Britiſh ſettlements on the coaſt of *Africa* uſually continues through April, May, and June, &c.: the ſultry, moiſt, foggy weather in July and Auguſt proceeding from the ſtagnating water of theſe rains, and the country abounding in woods that interrupt the free current

of

of the air, bring on remitting and intermitting fevers, always accompanied with extreme thirſt, a nauſea, and great inquietude, a frequent vomiting and purging of putrid bile; nor does the fever uſually abate until that is evacuated.

If a diſcharge of this humour is not made in time, the diſtemper aſſumes a continued and malignant form, the pulſe ſinks, and a delirium comes on, generally fatal. On board ſhips lying off the coaſt, both fever and fluxes, which are no leſs common at this ſeaſon, make their appearance, except ſuch ſhips moor out at ſea ſufficiently far from the land, to avoid the influence of the foul, putrid, ſtagnant air on ſhore. The ſea and land breezes moderate the virulence of the noxious air; the former of which brings it off, in a weakened degree to the ſhips; while the latter, coming in from the ſea, weakens and carries off more or leſs of the morbid miaſmata in its courſe from the land.

The fevers of the *Weſt Indies* are alſo of a very putrid nature, from cauſes nearly ſimilar, the months of April and May, &c. being the rainy ſeaſon there.

The heat of the atmoſphere, loaded with vapours, induces fevers of remitting and intermitting forms, with bilious vomiting, that alſo become epidemic throughout the months of June, July,

and Auguſt, particularly at *Jamaica*. Theſe fevers are incident to the natives, and thoſe who have reſided above a year on the iſland, as well as to other Europeans. But the new-comers are liable to a continued, a more putrid and dangerous fever; which, though not confined to any certain time of the year, coincides moſtly with the former, commonly known by the name of the yellow fever, or black vomit; diſtinguiſhed by vomitings of a matter ſometimes green and bilious; at other times black and bloody, but chiefly by the yellowneſs of the ſkin. The blood is frequently ſo reſolved, that before death it enters the ſerous veſſels, tinging the ſaliva and humour diſcharged from a bliſter.

After bleeding, under the before-mentioned cautions, it may be found neceſſary to give a vomit: the beſt time is allowed to be in the remiſſion or intermiſſion of the fever, and rather ſoon after a paroxyſm than before one. Ipecacuanha is the eaſieſt emetic tartar, the moſt efficacious in its operation. Thoſe vomits moſt productive of ſtools are the moſt uſeful, eſpecially if powerful enough to procure a plentiful diſcharge upwards and downwards of the putrid bile. By this means a cure may be ſometimes effected. But if the body remains coſtive, it is neceſſary to open it with ſome lenient phyſic; particularly if the

the bowels are affected with a dyſentery and a teneſmus.

The neutral ſalts are uſeful in bringing the fever ſooner to regular intermiſſions. The ſaline draught made with ſalt of wormwood and lemon juice, is one of the beſt forms for this intention.

The *ſpiritus mindereri* may be given, to the quantity of an ounce or more, divided into two or three draughts, when the ſweats are not profuſe enough, in proportion to the hot fits: the proper time for adminiſtering this medicine is before they go off, as it uſually promotes a plentiful diaphoreſis without heating; we may expect it will bring the fever ſooner to regular intermiſſions.

Theſe fevers, though never without inflammation in the beginning, and rarely have complete paroxyſms; yet, when the urine breaks, and there are entire, though ſhort intermiſſions, the bark may ſafely be given.

Without the precaution of bleeding and cleanſing out the firſt paſſages, either the fever returned, or a tympanites ſucceeded. To theſe remedies may be added neutral ſalts, diaphoretic medicines, &c.

Though a ſweat be the proper criſis, it ſhould not be moved by heating medicines, unleſs the pulſe ſhould ſink, and the petechiæ, or other bad ſymptoms appear; in which caſe it will be neceſſary

ceſſary to uſe the warmer alexipharmics, and treat the diſeaſe like (what in effect it is) a malignant fever.

For the cure of the malignant fever, as in all others, we muſt vary our method according to its ſtate. I ſhall therefore diſtinguiſh it into three periods, and in each propoſe thoſe remedies which I have found by experience to be the beſt. Let us ſuppoſe the firſt to continue as long as the perſon is able to go about; the ſecond to begin with his confinement, when the fever is apparent, the head much affected, but the pulſe ſtill full; and the third when the pulſe ſinks, and a ſtupor comes on, with other ſymptoms of diſeaſe.

In the firſt period, as well as in all the reſt, the fundamental part of the cure is to remove the patient out of the foul air. When that cannot be done, cauſe a ſtream or current of air to paſs through the patient's apartment, by means of the door and windows, or purified by lighting a fire, diffuſing ſteams of vinegar, &c. While the patient breathes a corrupted air, medicines will but little avail, or increaſe it by the effluvia of the diſeaſe.

We ſhould begin the cure with bleeding under the reſtrictions of former cautions, follow it by a vomit, then give a laxative, and repeat it as often as neceſſary; which may be every third or fourth

fourth hour, to evacuate the putrid matter, which has uſually taken poſſeſſion of the firſt paſſages. Beſides laxatives by the mouth, give a clyſter every twenty-four hours, or oftener, if neceſſary. After cleanſing the *primæ vitæ*, a gentle diaphoreſis is to be procured by proper medicines, and kept up.

It is needleſs to repeat what we have ſaid of our own medicines, which can be managed as vomit, purge, or clyſter; under all which forms they have a powerful tendency to promote ſweat and urine.

Carefully watch a remiſſion to throw in the bark.

In the ſecond period, when the fever is manifeſt, with a quick and full pulſe, moderate bleeding is indicated. When the ſymptoms are high, plentiful evacuations are called for; yet large bleeding has generally proved fatal, by ſinking the pulſe, and bringing on a delirium. Nor is moderate bleeding to be repeated but with the utmoſt caution; for, as many things are contradictory to common rules, ſo experience ſhews, that even thoſe whoſe blood is ſizy, unleſs the lungs be inflamed, are generally the worſe for a ſecond bleeding.

The next care is to promote a diaphoreſis, which, in this ſtate of the fever, is only to be attempted by the milder ſudorifics. At this time of the diſeaſe it is generally ſuppoſed that the morbific

morbific cauſe is too much fixed to be expelled by ſweatings, and has therefore been recommended*; that unleſs they come eaſily, and with relief to the patient, it is never to be forced or inſiſted on; and even if voluntary and profuſe, with a low and quick pulſe, it muſt be checked.

Though coſtiveneſs is to be prevented by emollient clyſters, leſt an accumulation of fæces prove a new fomes of corruption; yet this evacuation is not to be repeated ſo often as in inflammatory fevers, on account of the weakneſs attending this diſeaſe.

We come now to the third period of the diſeaſe, where the pulſe ſinks, the ſtupor is greater, a delirium impends, and petechiæ often appear. This change begins in three or four days after the fever is formed, often later, according to the treatment, and other circumſtances.

But what is obſervable, if the patient, on the firſt complaints, has been once or twice largely blooded, he will be apt to paſs over the ſecond ſtage, *particularly in hot climates*; and from a condition little removed from health, his pulſe ſinking, he may at once become delirious.

Now, whether by miſconduct or the courſe of the diſeaſe this alteration happens, we muſt vary the method, and have for our principal intention

* Sir John Pringle.

the

the ſupport of the *vis vitæ*, eſpecially towards the decline of the fever, when nothing can be lower than what the ſick uſually are.

This cannot be done without warmer medicines than what have yet been propoſed (our own medicines excepted); wherefore, as ſoon as the pulſe begins to flag, and the urine to turn pale, allow a liberal uſe of wine, which may be given diluted and undiluted to the extent of a quart a day, ſharpened with lemon juice, and ſweetened with ſugar.

Perhaps there is no rule of more importance in the decline of the fever, than the giving ſtrict charge to the attendants of the ſick never to let the patient, when low, remain longer without taking ſomething cordial or nouriſhing than two or three hours; having ſeen patients in a promiſing condition ſunk paſt recovery, by being allowed to paſs a whole night without any ſupport about the time of the criſis.

As to the criſis of the fever, it may happen in different ways, without any reſpect to the critical days enumerated by the ancients: it ſometimes happens by ſweat. But the moſt favourable and certain, being the beſt termination of all fevers of this ſort, is when it terminates in an eruption of ſmall biles on the ſurface of the body.

In eruptive fevers it is commonly allowed that the

the patient ſhould be kept in bed for fear of checking the eruption: but this does not always prove true, for ſometimes the contrary will happen; and ſitting up, out of bed, has even been found favourable thereto.

A ſtupor ſeems almoſt inſeparable from this fever, particularly in its low ſtate, which frequently in the evening turns to a light delirium. But if the delirium increaſes upon the uſe of wine, if the eyes look wild, or the voice becomes quick, there is a preſumption of a true phrenitis, when all heating internal medicines aggravate the ſymptoms; whilſt bliſters, before uſeleſs, become of conſiderable ſervice.

Under the emergency of theſe ſymptoms wine and cordial medicines are to be diſcontinued, or ſparingly adminiſtered; and the drink reduced to weak muſtard whey, rendered agreeable to the palate by ſyrup of lemon juice or the lemonade powder. Bliſters are recommended in thoſe ſymptoms by Sir John Pringle, Dr. Huxham, and Dr. Lind; and by ſome are called *their anchor of hope.*

An able practitioner, mentioned in the introduction to this treatiſe *, in order to determine the efficacy of bliſters, has lately made ſeveral

* Dr. Home's Clinical Experiments.

trials

trials or experiments on a number of patients, in the typhus nervoſus, or low nervous fever, in which the advantages that reſulted from them did not ſeem to counterbalance their diſadvantages. The reaſon ſeems to be this:—The ſtimulent power of bliſters laſts only for two or three hours during the pain, in which time the pulſe commonly becomes quicker. After this, their antiſpaſmodic effects take place, and the pulſe, when they are ſucceſsful, becomes ſlower. It is to this laſt effect that topical inflammations owe their cure; but it can be of little uſe in the typhus, as every ſymptom in its progreſs points extreme preternatural relaxation, rather than preternatural conſtriction or ſpaſm. They can have no advantage, therefore, in this fever but from their ſtimulent power, which laſts too ſhort a time to be of much ſervice. Among them any diſadvantages of bliſters, ſtranguary is none of the leaſt. I find it eaſy, however, to prevent this effect, ſo that I ſeldom or never obſerve a ſtranguary following a bliſter. Doctor Greenfield was the firſt who, in the beginning of this century, diſcovered that camphor had a power of correcting this effect of cantharides. Some, however, have doubted this quality. I tried many years ago camphor rubbed on bliſters, found it to anſwer, and have always uſed it with the greateſt ſucceſs.

ſucceſs. I once removed a ſtranguary ſuddenly in a typhus, by rubbing camphorated oil on the ancles. Notwithſtanding the advantage which rubbing a little powdered camphor on the plaſter has in preventing one of its uneaſy effects, yet I believe it is ſcarcely if at all followed: more truſt is put in great quantities of emulſion and the like, which often load the ſtomach too much, relax it, and increaſe the general debility.

Bliſters, therefore, appear to be of little uſe in curing the typhus; yet they are of the greateſt utility in relieving the ſevere head-ach, a troubleſome ſymptom which always attends it. Bliſters applied to the temples remove this ſymptom moſt ſucceſsfully, without directly producing any good effect on the fever, though they may indirectly, by removing one cauſe of watchfulneſs and weakneſs. To prove this by facts would be to quote almoſt every low fever that has happened in the clinical ward. I was led to this application, by obſerving that the rind of a lemon, cut off thin, and the inſide applied to the temples, excites a redneſs, and cures a head-ach. I tried bliſters to the temples in a remitting fever, in Flanders many years ago, and they ſucceeded beyond my expectation. I have continued the uſe of them ſince that time, have introduced the practice into the clinical ward, and uſed them

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in every typhus with the greateſt degree of certainty. This application has been much confirmed, though it did not take its riſe there. This mode of application has almoſt ſuperſeded the uſe of bliſters to the whole head, which have their inconveniences.

The effects of topical bliſters depend, 1ſt, On their ſtimulus. The temples are very ſenſible, as the patients complain much of the bliſters applied there. It is near the part affected, and communicates directly with the nerves of the eyes. If the pain ariſes from the nervous ſyſtem alone, nothing is more proper than nervous counter-irritation to relieve it, as the nervous ſyſtem is but rarely capable of ſuffering two pains at at once. In this way all rubefacients become antiſpaſmodics. 2dly, On the evacuation produced. The external and internal veſſels ariſe from the ſame ſource, often communicate through the cranium, and always by means of the arteria orbitalis. If, therefore, the head-ach ariſes from a plethoric ſtate of the brain, it muſt be cured by the depletion that follows. Hence this application, and a running kept up for ſeveral days, by iſſue-ointment, is the moſt ſucceſsful remedy in obſtinate opthalmias.

A doctrine ſo well-founded and ably eſtabliſhed on reaſon and facts, is a very proper model for our practice; but as this reaſoning and facts

were adduced from obſervations and experiments made in the typhus nervoſus, or low nervous fever, that they ſhould not be thought inapplicable, it may be neceſſary to conſider the low nervous fever and the putrid malignant fever together.

The ſymptoms in a putrid malignant fever are many of them ſimilar to thoſe in the low nervous fever: hence the two have by many been confounded as the ſame diſeaſe; but we may readily diſtinguiſh the one from the other by the ſigns of putrefaction, which always appear in the one, but are wanting in the other.

The vomiting in this fever is at times conſtant and violent, eſpecially in the worſt kinds of the diſeaſe; and the blood being frequently in a diſſolved ſtate, is forced into the ſtomach and thrown up, forming what has been called by the Spaniards the *black vomit*.

The blood is ſaid ſometimes to tinge the urine and ſaliva, and even to iſſue from the pores of the ſkin. As the heat increaſes the face gets flushed, the ſenſes are more affected, and the patient often gets wild and delirious, or drowſy and lethargic. Theſe ſymptoms, after a time, are ſucceeded by a ſweat, which is often profuſe, and gradually procures an abatement of the fever.

The length of the *fit* varies conſiderably. It ſometimes terminates in ſix or ſeven hours, though its duration is more commonly from fifteen to twenty-

twenty-four hours. In ſome inſtances it extends even to thirty-ſix and forty-eight hours; and Dr. John Hunter ſaw one example of it continuing three complete days, without any marks of remiſſion.

The *remiſſions* vary much in their duration; ſome do not laſt longer than one or two hours, though more commonly they continue ten or fifteen, and ſometimes thirty or thirty-ſix hours. The fever in ſome caſes aſſumes the quotidian type, and has an exacerbation every day at nearly the ſame hour; but generally it obſerves no regularity in the times, either of acceſs or remiſſion.

The remiſſions are more or leſs complete; ſometimes they amount almoſt to an intermiſſion, though much more generally there is only an abatement of the ſymptoms. The ſleep, during the remiſſion, is diſturbed, and procures but little refreſhment.

When the fever is ſevere, ſymptoms often occur that has given the name of the *yellow fever* to the diſeaſe: it happens chiefly to the new-comers. It is produced by the addition of the jaundice to the other ſymptoms of the fever. There are inſtances of jaundice accompanying the fits of intermittent fevers in England, and examples of yellowneſs in the *hoſpital or jail fever*.

To ſlight feveriſh ſymptoms are ſometimes

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dded ſmall painful tumors in the ſkin, called *at-boils*; they appear to be ſmall carbuncles. There is firſt a pain felt in the ſkin, eſpecially on being touched, which is ſoon followed by a ſlight ſwelling not unlike a common pimple: they are ſometimes as large as a nutmeg, and are exceedingly painful, eſpecially if ſqueezed, or near a joint where there is much motion. They do not ſuppurate, but form a kind of core, which is diſcharged by one or more holes from the ſmall tumor. Any violence applied to them, as in common pimples, produces great ſwelling and pain in the ſurrounding parts; they are conſidered as favourable ſymptoms, being ſuppoſed to prevent a fever.

Among the ſymptoms which more rarely occur during the fever there are ſome that follow it, though but rarely. Parotids, or ſwellings, and ſuppurations of the parotid glands, are ſometimes a conſequence of the fever; as are alſo abſceſſes near the anus, and in other parts of the body. Dr. John Hunter ſaw no inſtance in Jamaica of the common hoſpital or jail-fever, although many of the military hoſpitals were very much confined and crouded, which is matter of ſome conſolation, in the hiſtory of the remitting fever, to be able to ſay, that it is not infectious. The two diſeaſes are very diſtinguiſhable; the diſputation to remit in

the latter, and the continued uniformity of the other, in which there is not the ſmalleſt appearance of exacerbation or remiſſion.

The reaſon why the *jail fever* is not generated in Jamaica is very obvious; every houſe in the country is ſo conſtructed as to give as free admiſſion to the air as poſſible, which the great heat of the climate renders neceſſary. By this means a conſtant perflation is kept up, and the air that is breathed by the ſick changes every moment, and therefore never acquires by ſtagnation and confinement thoſe noxious qualities which prove the cauſe of the hoſpital-fever in cold climates.

Though it is impoſſible to refer every particular uſe of fever to a diſtant claſs, on account of the mixed and anomalous ſymptoms that ariſe, yet there are certain diſtinguiſhing features which afford ſufficient ground for dividing them into different kinds, and ſuch diviſion will at leaſt ſerve to facilitate deſcription, and to afford room for laying down the outlines of practice.

The fevers which occurred moſt frequent on board ſhips, and at naval hoſpitals belonging to the fleet in which Dr. Blane was employed, were the infectious *ſhip-fever*, which is the ſame with the jail and hoſpital-fever, the *bilious remitting fever*, and the *malignant yellow fever*.

The infectious *ſhip-fever* does not occur ſo frequently in hot as in cold climates, becauſe there

is ſomething in the warmth of hot climates which prevents the production of contagion, as before remarked. One of the moſt remarkable characteriſtic ſymptoms of this fever is a greater degree of muſcular debility than what takes place in other fevers. It is alſo a remarkable true index of the degree of malignity, the danger being in proportion to this ſymptom. Another pretty conſtant ſymptom of this fever is the ſpots known by the name of *petechiæ* and *vibices*; they occur only in the latter ſtages of the diſeaſe, and in caſes of conſiderable danger.

We know of no medicine that ſo quickly relieves the head and procures reſt and perſpiration in this fever as the *antifebrile powders*. The great tendency to acrid excretions, and the danger uſually apprehended by practitioners of opiates cauſing a retention of them, are obviated by giving this medicine. In default of the powders *ſpiritus mindereri*, combined with ſyrup of poppies, may be ſucceſsfully given.

Abſolute and dogmatic rules are ſo far from applying in the practice of phyſic, that there are ſome caſes of the ſame diſeaſe that may require a treatment even oppoſite; yet there ſhould always be ſome rule of action, which rule ſhould not be held invariable, but follow the ſymptoms as they ariſe in the progreſs of the diſeaſe.

In an advanced ſtage of the fever, when weakneſs,

neſs, reſtleſſneſs, tremors, and low delirium prevail, the cordial, anodyne, antiſpaſmodic qualities of the *antifebrile powders* will ſecure them reputation.

The bilious remitting fever has, for its moſt diſtinguiſhed ſymptom, a copious ſecretion of bile; it ſeldom ariſes at ſea, unleſs where there has been a previous expoſure on ſhore; as when the duty of the ſhip occaſions the men to wood or water, or bring off neceſſaries, or the like.

This fever, though generally ſhorter in its courſe, very much reſembles the fever before deſcribed, except that it is not ſo equal and ſteady; the ſymptoms are more violent in the beginning, and more ſudden in their efforts: it is alſo diſtinguiſhable from the ſhip-fever by bilious ſtools and vomits. Dr. Blane lays down the following poſitions: 1ſt, That in caſes where the bile is moſt freely and copiouſly ſecreted no fever exiſts, as in a *cholera morbus*.—2dly, That in the worſt ſort of fevers there is no preternatural ſecretion of bile, but on the contrary a defect of it.—3dly, That nevertheleſs there is an uncommon quantity of bile ſecreted in moſt of the fevers of hot climates, and that part of the cure conſiſts in evacuating it.

The practice of giving an anodyne diaphoretic, after the evacuation of the bowels, is a laudable effort to obtain a remiſſion; and throw in the bark.

We need not wait for any evacuation, previous to the exhibition of the *antifebrile powders*, which is at the ſame time the moſt ſafe and expeditious mode of procuring a remiſſion: we may even boldly join the bark to it from the very firſt, or alternate them with it, as may ſeem moſt adviſable to the practitioner.

The noxious air of woods, and the morbid effluvia of marſhes, from bringing on this fever, have ſometimes procured it the name of the *marſh-fever*.

The yellow fever rarely occurs but under the influence of hot climates; it differs from the bilious remitting fever in this, that the air of woods and marſhes does not ſo commonly produce it. Expoſure to the ſun, the putrid effluvia of the ſhip's-hold, and the ſeverer ſtages of the bilious and putrid malignant fever, induce the yellow fever.

This fever, as has been already ſaid, aſſumes various forms, according to the conſtitution and other circumſtances of thoſe whom it attacks; and is moſt remarkable in ſeizing on thoſe newly arrived from a cold or temperate climate on their arrival in hot climates. In the courſe of this diſeaſe there is not a free ſecretion of bile, and leaſt of all in caſes that are moſt violent.

There is ſomething very peculiar in the countenances of the ſick in this fever, very diſcernible to theſe accuſtomed to patients of this ſort. The appearance

appearance conſiſts in a yellow, dingy flushing or fulneſs of the face and neck, particularly about the parotid glands, where the yellow colour of the ſkin is uſually firſt perceived; and in the eye and countenance remarkable expreſſion of dejection and diſtreſs.

One of the moſt conſtant and diſtinguiſhing ſymptoms of this fever is an obſtinate, unremitting, and painful *pervigilium*, which is the more tormenting, as the patient is extremely deſirous of ſleep, which is probably beſt relieved by the ſadative, pacific powers of the *antifebrile powders*. But the moſt dangerous ſymptom is the almoſt unconquerable irritability of the ſtomach, in which perhaps our only refuge is thoſe powders.

Dr. Blane found nothing ſo ſucceſsful in removing irritability of the ſtomach as applying a bliſter externally to the part.—(See the paſte recommended to be applied to the pit of the ſtomach in the *cholera morbus*). This paſte, actuated with a drachm of powdered cantharides, ſeems well calculated to remove this dangerous ſymptom.

The following accurate deſcription of the mortal epidemic fever that rages in Guinea during the rainy ſeaſon, which is of the low remitting kind, raged on board the Weazel ſloop of war during that ſeaſon at Gambia, in Auguſt 1769, is taken from the journal of the ingenious Mr. Robertſon,

Robertſon, ſurgeon of that ſhip. The ſymptoms are arranged according as the fever appeared in a more mild or more malignant form.

In its mildeſt form it began with a head-ach, a ſickneſs at the ſtomach, thirſt, univerſal uneaſineſs, and pain, eſpecially in the back and loins. The pulſe ſmall and quick, the ſkin hot and dry. In the morning theſe complaints were greatly relieved; in the evening exaſperated, which happened through the whole courſe of the fever.

About the third day the violence of the ſymptoms increaſe; the tongue now becomes white and foul; the ſpeech weak and faultering; the thirſt inſatiable; the pulſe ſoft and weaker than natural. On the third night ſeveral had profuſe ſweats; on the fourth day the patients loſe the ſenſation of taſte, and towards the evening become very hot and reſtleſs.

On the fifth day the weakneſs is increaſed. Hitherto the patients had not been confined to bed in the day time. On the ſixth, frightful dreams; an incipient delirium prevents them from ſleeping.

On the ſeventh they grow worſe; their tongues are brown, dry, and chopped; the delirium is increaſed, with reſtleſſneſs and univerſal uneaſineſs. On the eighth, the remiſſions and exaſperations happen as uſual. The ninth is the worſt day; in

the

the morning they are cool, but the ſymptoms ſoon return with increaſed violence.

Their pulſe, ſince the ſixth day, has been very irregular, and in general weaker than natural. After this day there is a perfect remiſſion of the fever, but towards night they become a little feveriſh till the ſeventeenth. The criſis of the fever is a gentle purging.

In the more malignant form of the fever all the ſymptoms are more violent; there is from the beginning a great proſtration of ſtrength and ſpirits, univerſal uneaſineſs, giddineſs, violent reachings, a ſtrong, quick, and ſometimes a hard pulſe; a white and dry tongue; ſometimes a ſevere purging with gripes; at other times a bad cough, a violent pain and ſtricture over the eyes, and coſtiveneſs.

On the ſecond day there is an alteration for the better: about the third day, in the morning, there is a ſmall remiſſion, but in the evening they again turn ill. On the fourth, ſcarce any remiſſion could be perceived.

When a remiſſion happened, it did not laſt above three hours; the patient ſeemed a little cooler, but the thirſt was not abated, and the palms of the hands and the ſoles of the feet glowed with heat: anxiety, reſtleſſneſs, and frightful dreams prevent them from ſleeping; their memory begins to fail; the tongue in a few minutes is white and furred,

furred; in moſt dry and chopped. Bilious vomitings and frequent looſe fœtid ſtools have attacked ſeveral; but thoſe who were coſtive in the beginning ſtill remain ſo.

Fifth, in the night, ſeveral were delirious; the tongues of ſome were become black, and the teeth furred.

Sixth, in the morning, a few of them had a ſmall remiſſion, but all had been very ill at night. The pain of the back and loins, giddineſs, and pain at the bottom of the orbit of the eyes, are ſtill very troubleſome.

On the ſeventh, the delirium is more general, and in ſome the countenance is quite yellow; a wild look, heat of urine (not from bliſters) an inclination to vomit, and looſe ſtools are frequent this day.

Eighth, a few after ſevere bilious vomiting and purgings, which ſtained like ſaffron, had purple blotches on the face and neck. In one patient a ſwelling of the parotid gland appeared. Delirium, ſtupor, cold ſweats, convulſive tremors, and catching, twitchings of the tendons, an involuntary diſcharge of urine and fæces are frequent this day; the pulſe is very irregular.

Ninth, all the bad ſymptoms continued: the blotches roſe above the ſkin, and ſoon diſappeared; the patients thought themſelves better while they remained on the ſkin. A bleeding of the noſe occurred

occurred in one of them, which was alſo tinged with yellow.

Tenth, a few had a ſlight remiſſion.

Eleventh, the dangerous ſymptoms continued; a large effuſion of blood under the ſkin appeared on one patient, on the right ſide of the face and neck, a little before his death.

Thirteenth, their countenances were much more yellow, and they were ſeized with a purging, but not attended with gripes. One of them had a gentle and univerſal perſpiration; he was afterwards cooler, and his complaints were relieved. Among others the bad ſymptoms ſtill remained; one was ſeized with faintings.

Fourteenth, the purging was attended with gripes; the patients continued cooler, but very weak, and the bad ſymptoms ſtill prevailed, with the ſubſultus tendinum.

Fifteenth, the bad ſymptoms continued; the ſwelling of the parotid gland in one patient was opened. Thoſe who had the purging and yellow countenance were better; one had the piles.

Sixteenth and ſeventeenth, all continued better except one man.

Eighteenth, a man who for two days had appeared to be in a very dangerous ſtate, fell into a ſound ſleep, followed by an equable perſpiration, which proved a happy criſis. In one patient the fever continued till the twenty-firſt day, but it had been

been very mild during the whole courſe, as to the critical days and ſymptoms that were moſt dangerous in the fever.

On the third day in the evening, a perfect remiſſion in one caſe. In another caſe a remiſſion of thirty-two hours was procured on the fifth day in the morning; but the fever afterwards returned for twelve hours with increaſed violence.

On the eighth day four died, and in one a ſwelling of the parotid gland formed. In the middle ſtate of the fever an imperfect criſis happened on this day: one perſon died on the tenth, and on the eleventh three; on the thirteenth one died, and many were ſeized with purging, which proved a favourable criſis. In one an equable perſpiration broke out, which was ſucceeded on the fourteenth by a gentle purging, and proved ſalutary.

On the fourteenth alſo another patient died, who had had bleedings at the noſe, and blotches on the neck. On the fifteenth the ſwelling of the parotid gland was ripe for opening. On the eighteenth the unexpected criſis happened in a very dangerous caſe, by means of a ſound ſleep and a free perſpiration.

Coſtiveneſs, frequent diſcharges of bile both by ſtool and vomiting, bleedings from the noſe, blotches, a brown, rough, and huſky tongue, a ſmacking of the lips, wildneſs of the countenance,

and

and a deſpondency of mind, were in every caſe mortal. A cough proved fatal in two caſes out of three, which third was the remarkable caſe that came to a criſis on the eighteenth day.

An involuntary diſcharge of urine and fæces, except in two caſes, was alſo followed by death: in the firſt caſe there was a ſwelling of the parotid gland; in the ſecond an unexpected criſis happened on the eighteenth day:—a pain either over the eyes, or deep within the orbit, faintings, drinking greedily, or in large draughts, were dangerous ſymptoms.

Upon feeling the pulſe, a diſagreeable ſenſation always remained on the fingers, eſpecially if there was a moiſture on the patient's ſkin; but where the perſpiration proved critical this did not occur.

Moſt of theſe patients were vomited and purged when firſt taken ill. The mortality of the fever, it is ſuppoſed, was greatly leſſened by the ſhip leaving Gambia, and being at ſea. The captain was ill of it, and took ten ounces of bark. Hence we may, in ſome meaſure, judge how many pounds of that remedy would have been requiſite in caſes of thirty or forty ſuch patients, on board even a very ſmall ſhip, and how far the allowance made to the ſurgeon for medicines was adequate to this extreme.

An

An inflammatory fever is ſeldom obſerved in Africa or the Weſt Indies during the rainy ſeaſon. The flux chiefly occurs at this time, though it may ſometimes make its appearance during the dry ſeaſon, and is a diſtemper very common, and often fatal, to Europeans in both Guinea and the iſland of Jamaica. The moſt mortal epidemic, however, is that low malignant fever of the unremitting kind, which rages only in the rainy ſeaſon, particularly in Africa.

The DRY BELLY-ACH is the ſame in thoſe countries as in the Eaſt Indies. The GUINEA-WORM ſeems peculiar to Africa, and ſome few parts of Aſia. In the former of theſe painful diſeaſes, known alſo by name to be the *Devonſhire colic*, the *colic of Poictiers*, *colica Pictonum*, and *convulſive colic*.

Begins with a ſenſation of weight or pain at the pit of the ſtomach, attended with a loſs of appetite, yellowneſs in the countenance, a ſlight degree of ſickneſs, and coſtiveneſs. A vomiting ſucceeds of acrid ſlime and porraceous bile. The pain will frequently deſcend to the region of the navel, and ſhoot from thence to each ſide with exceſſive violence; and the inteſtines ſeem as if drawn in towards the ſpine with convulſive ſpaſms. The pain does not, as in moſt colics, abate and increaſe ſeveral times in a few minutes, but generally

obſerves

obſerves the ſame tenor. The pulſe is commonly low, and as quiet as in health, without any appearance of fever or inflammation; but rather, on the contrary, a faintneſs and lowneſs of ſpirits. When the pain has continued long and violent, and begins to abate, the patient commonly feels an unuſual ſenſation and tingling along the ſpina dorſi; which extending to the arms and legs, they thus become weak and paralytic.

As a preventative in the Weſt and Eaſt Indies, and the coaſt of Guinea, it has been found of great uſe to wear a flannel round the waiſt, and to drink an infuſion of ginger by way of tea.

The moſt effectual method of cure is for the patient to drink chamomile-tea until it returns; and, having waſhed the ſtomach two or three times, give the following medicines:

Take of the antifebrile powder, No. 2, xx grains,
Cathartic extract ʒj.
Eſſential oil of peppermint vj drops.
Camphor ij grains.
Extract of opium, from half a grain to a grain and an half.
Syrup of ginger ſufficient to make a bolus.

And give it in one or two doſes as urgency indicates.

Take of antifebrile powder, No. 2, ij ℈.
Tincture thebaic, ij ℈ ſſts to j ʒ. ℈.
Tinctura ſacra, j ʒ.
Olive oil, j ʒ.
Eſſential oil of peppermint, x drops.
Common decoction, vj ʒ.

Make into a clyſter.

Soon as the ſtomach is waſhed out with the chamomile-tea, adminiſter the bolus and clyſter; and without loſs of time apply the following ointment and fomentation:

Take of antifebrile powder, No. 2, one packet.
Opodeldoc, j ʒ.
Eſſential oil of mint, xxx drops,
Eſſential oil of hartſhorn, x drops.

Make this into an ointment.

Take white wine mulled, one quart.

N. B. In default of wine uſe anodyne fomentation, with x drops of eſſential oil of mint.

Antifebrile powder, No. 1, one packet.

Diſſolve the powder in the mulled wine or anodyne decoction, and add the eſſential oils.

Immediately after giving the cathartic bolus and anodyne clyſter, anoint the ſpine and ſmall of the back with the anodyne antiemetic ointment, and the pit of the ſtomach; and frequently embrocate

cate the whole abdomen and thighs with the anodyne fomentation. The anointing the ancles and ſoles of the feet will prevent and remove ſpaſms.

We know of nothing of equal efficacy to relieve the vomiting when inceſſant, and the pain acute, equal to the medicines here preſcribed, on which we have always relied with ſucceſs; as well for thoſe purpoſes as immediately procuring a paſſage, or in a much ſhorter time than any thing we have known to be applied or made uſe of.

When ſtools have been procured, and the pain abated, give caſtor oil in the undermentioned form to keep the body open, remove the remains of conſtipation, and prevent a relapſe.

Take caſtor oil, j ℥.
Mucilage of gum-arabic, j ℥.
Eſſ. oil of peppermint, xij drops.
Camphor, ij grains.
Ex. opium, j grain.
Peppermint water, iiij ℥.

Make into a draught; one half to be given in the morning, and the other before dinner; and to be repeated every day as long as occaſion requires.

The diet muſt be thin and ſpare, of weak broths, panada, gruel, and thin chocolate, wine and water, and very little animal food, and always of the lighter kind.

Acids are beſt avoided; and if permitted, ſhould be joined to rum, brandy, or Holland gin, with water, and drank weak, and but in little quantity. The only acid that can be taken with ſafety is the vitriolic, which ſhould not be uſed when taking our powders; neither ſhould alkalies, as before obſerved. It may be given under the form of the tincture of roſes, to acidulate and render the patient's drink palatable.

The dry belly-ach, though one of the moſt excruciating diſtempers, ſeldom proves mortal, unleſs it has been occaſioned by ſleeping on the ground, expoſed to the night air, or aggravated by drinking immoderately of ſpirituous liquors (frequently new diſtilled), at the firſt coming on of the diſeaſe, which is too often done with a view to remove it.

The bowels ſhould be regularly kept open with the caſtor oil, or ſome other gentle purgative; and to confirm the cure in this and all other debilitating diſeaſes, attention ſhould be paid to recruiting the patient's ſtrength. Dry frictions, perpetual bliſters, and a moderate uſe of Madeira or Teneriffe wine, generally prove ſerviceable.

With reſpect to the treatment of this diſorder in Jamaica, we learn from good authority*, that after the

* Dr. John Hunter.

firſt

firſt evacuations by ſtool were procured, though the ſtrength of the diſeaſe was broken, there ſtill remained in many caſes a diſpoſition to coſtiveneſs, with more or leſs pain in the abdomen; for the removal of which it was proper to give opening medicines from time to time, as the *oleum recini*, *aloetic-pills*, and *gum guaiacum*, diſſolved in ſpirits, or any other that agreed with the patient.

Thoſe often brought away ſmall balls of hardened fœces, ſeveral days after the paſſage of the bowels appeared to have been opened. Bitters, or an infuſion of chamomile and gentian were given to ſtrengthen the ſtomach.

The ſecond ſtage of the diſeaſe, the palſy, is always a moſt obſtinate complaint, and in many caſes the ſick never recover completely either the ſtrength or motion of the arms or wriſts.

There was frequently much pain in the paralytic limbs, and at times puffy ſwellings in particular parts, which appeared and diſappeared ſuddenly; both theſe ſymptoms were relieved by the linimentum volatile; and when the pains were violent, eaſe was procured by opiates.

In ſome caſes the pain in the bowels ſhifted ſuddenly to the head, the miſery of the patient became extreme, and, in one inſtance, a temporary madneſs. In this ſtate nothing procures equal relief with bliſters applied to the back, behind the

ears, and to the temples* ſucceſſively, as the violence or duration of the pain may require. Opiates alſo procure a ſlight mitigation of the ſufferings of the ſick.

This author, from his own experience, as well in this country as in Jamaica, is among thoſe who are not for adminiſtering opiates in this diſeaſe until a free paſſage is opened in the bowels. He found the conſtitution in this iſland peculiarly ſenſible to the effects of mercury, contrary to what might be expected, were the opinions uſually entertained on this ſubject true: for if a determination of the humours to the ſkin could prevent mercury from affecting the mouth, it ought to be a difficult thing to excite ſalivation in Jamaica, where the perſpiration is at all times profuſe.

He found that warm water, with ſome oil given as a clyſter, relieved the ſtranguary: common ſalt more ſtimulating, in the ſame form, than Glauber's, or better purging ſalt.

The ſame gentleman very judiciouſly attributes the dry belly-ach to lead. That lead taken into the body, in all its various forms, produces colic and palſy, is a fact as well eſtabliſhed as any in phyſic. Nor is it material whether the lead be in vapour, as among ſmelters; in a metalic ſtate,

* See what we have inſerted under bliſters.

as

as among glaziers and plumbers; in calx, as among painters and the manufacturers of white lead; or, in a ſaline ſtate, as in wine and cyder. Under every form it is equally productive of the diſeaſe in queſtion.

The quantity of lead requiſite to produce the diſeaſe admits of conſiderable variation; for there are clear proofs of its ariſing from a few grains of *ſaccharum ſaturni*, and alſo well-authenticated caſes in which that ſalt has been given liberally, and without any mediate ill effect.

To uſe his own words,—But what is to be inferred from this more than that there are ſome conſtitutions affected in a ſhorter time, and by a ſmaller quantity of this poiſon than others?* An obſervation applicable not only to every poiſon, but every active medicine with which we are acquainted. Here follows Dr. Franklin's letter to his friend Mr. Vaughan, on the ſubject before us.

Philadelphia, July 31ſt, 1786.

DEAR SIR,

I RECOLLECT that when I had the great pleaſure of ſeeing you at Southampton, now a twelvemonth ſince, we had ſome converſation on

* Med. Tranſ. vol. i. p. 257. vol. ii. p. 419.

the bad effects of lead taken inwardly; and that at your requeſt I promiſed to ſend you in writing, a particular account of ſeveral facts I then mentioned to you, of which you thought ſome good uſe might be made, I now ſit down to fulfil that promiſe.

The firſt thing I remember of this kind was a general diſcourſe in Boſton, when I was a boy, of a complaint from North Carolina againſt New England rum, that it poiſoned their people, giving them the dry belly-ach, with a loſs of the uſe of their limbs. The diſtillers being examined on the occaſion, it was found that ſeveral of them uſed leaden ſtill-heads and worms; and the phyſicians were of opinion that the miſchief was occaſioned by that uſe of lead.

The legiſlature of the Maſſachuſetts thereupon paſſed an act, prohibiting, under ſevere penalties, the uſe of ſuch ſtill-heads and worms thereafter.

In 1724, being in London, I went to work in a printing-houſe of Mr. Palmer, Bartholomew Cloſe, as a compoſitor; I there found a practice I had never ſeen before, of drying a caſe of types, (which are wet in diſtribution) by placing it ſloping before the fire. I found this had the additional advantage, when the types were not only dried but heated, of being comfortable to the hands working over them in cold weather; I therefore ſometimes

times heated my caſe when the types did not want drying: but an old workman obſerving it, adviſed me not to do ſo, telling me I might loſe the uſe of my hands by it, as two of our companions had nearly done: one of whom that uſed to earn his guinea a week, could not then make more than ten ſhillings; and the other, who had the dangles, but ſeven and ſix pence. This, with a kind of obſcure pain that I had ſometimes felt, as it were in the bones of my hand, when working over the types made very hot, induced me to omit the practice.

But telling afterwards Mr. James, a letter-founder in the ſame cloſe, and aſking him if his people who worked over the little furnaces of melted metal were not ſubject to that diſorder, he made light of any danger from the effluvia, but aſcribed it to the particles of metal ſwallowed with their food by ſlovenly workmen, who went to their meals after handling the metal without well waſhing their fingers; ſo that ſome of the metaline particles were taken off by their bread, and eaten with it.

This appeared to have ſome reaſon in it; but the pain I had experienced made me ſtill afraid of thoſe effluvia. Being at Derbyſhire at ſome of the furnaces for ſmelting lead ore, I was told that the ſmoke of thoſe furnaces was pernicious to the neighbouring graſs and other vegetables; but I do not

not recollect to have heard any thing of the effect of ſuch vegetables eaten by animals. It may be well to make the inquiry.

In America I have often obſerved that on the roofs of our ſhingled houſes, where moſs is apt to grow in northern expoſures, if there be any thing on the roof painted with white lead, ſuch as baluſters or frames of dormant windows, &c. there is conſtantly a ſtreak on the ſhingles from ſuch paint down to the eaves, on which no moſs will grow, but the wood remains conſtantly clean and free from it.

We ſeldom drink rain water that falls on our houſes; and if we did, perhaps the ſmall quantity of lead deſcending from ſuch paint, might not be ſufficient to produce any ſenſible ill effect on our bodies. But I have been told of a caſe in Europe, I forget the place, where a whole family was afflicted with what we call the dry belly-ach, or *colica pictorum*, by drinking rain water.

It was at a country ſeat, which being ſituated too high to have the advantage of a well, was ſupplied with water from a tank which received the water from the leaded roofs. This had been drank ſeveral years without miſchief; but ſome young trees planted near the houſe, growing up above the roof, and ſhedding their leaves upon it, it was ſuppoſed that an acid in theſe leaves had corroded the lead they covered, and furniſhed the

the water of that year with its baneful particles and qualities.

When I was in Paris with Sir John Pringle in 1767, he viſited *La Charite*, an hoſpital particularly famous for the cure of that malady, and brought from thence a pamphlet containing a liſt of the names of perſons, ſpecifying their profeſſions or trades, who had been cured there.

I had the curioſity to examine the liſt, and found that all the patients were of trades that ſome way or other uſe or work in lead; ſuch as plumbers, glaziers, painters, &c. accepting only two kinds, ſtone-cutters and ſoldiers: in them I could not reconcile to my notion that lead was the cauſe of that diſorder. But on my mentioning this difficulty to a phyſician of the hoſpital, he informed me that the ſtone-cutters are continually uſing melted lead to fix the ends of iron baluſtrades in ſtone, and that the ſoldiers had been employed by painters as labourers in grinding colours.

This, my dear friend, is all I can at preſent recollect on the ſubject. You will ſee by it that the opinion of this miſchievous effect from lead is at leaſt above ſixty years old; and you will obſerve with concern how long an uſeful truth may be known and exiſt, before it is generally received and practiſed on. I am ever,

Yours moſt affectionately,

B. FRANKLIN.

Dr.

Dr. Lind has remarked that the Engliſh have in this part of the world (the Eaſt Indies) four preſidencies or governments, to which all their other factories are ſubordinate, and upon which they depend, Madraſs, Bengal, Bombay, and Bencoolen.

The climate of *Bencoolen* has proved the moſt ſickly of theſe, not only to the Engliſh, but to all who have been accuſtomed to live in a pure air. Many Engliſh have fallen a ſacrifice to the intemperature of this climate; and indeed very few of them ſurvived any length of time, until they built a fort on a dry elevated ſituation, at the diſtance of about three miles from the town. It is called Fort Marlborough; where, during the rage of ſickneſs at Bencoolen, the garriſon is frequently healthy.

Bengal, next to Bencoolen, of all the Engliſh factories, proves the moſt fatal to Europeans. The rainy ſeaſon commences at Bengal in June, and continues until October; the remainder of the year is healthy and pleaſant. During the rains this rich and fertile country is almoſt quite covered by the overflowing of the river Ganges, and converted as it were into a large pool of water. Diſeaſes rage among the Europeans in the month of July, Auguſt, September, and October, attacking chiefly ſuch as are lately arrived.

Here, as in all other places, ſickneſs is more frequent and fatal in ſome years than in others.

The

The diſtempers are fevers of the remitting kind; ſometimes they may begin under a continued form, and remain ſeveral days without any perceptible remiſſion: but they have in general a great tendency to remiſſion.

They are commonly accompanied with violent fits of rigors, or ſhiverings, and with diſcharges of bile upwards and downwards. If the ſeaſon be very ſickly, ſome are ſeized with a malignant fever, of which they ſoon die; the body is covered with blotches of a livid colour, and the corps in a few hours turns quite black and corrupted. At this time fluxes prevail, which may be called bilious or putrid, the better to diſtinguiſh them from others which are accompanied with an inflammation of the bowels.

In all theſe diſeaſes at Bengal the lancet is cautiouſly to be uſed. It is a common obſervation both at Bengal and Bencoolen, that the moon or tides have a remarkable influence there on intermitting fevers. However the moon's influence may operate, theſe obſervations furniſh an uſeful hint, which is, in ſuch ſituations, to take a doſe of bark at the full and change of the moon, as being the ſeaſon found there to be moſt open to an attack, or relapſe of the intermitting fever.

At *Bombay* the air is more wholeſome than at Bengal; and in general the whole coaſt of *Malabar* is tolerably healthy. The iſland of Bombay has

of

of late been rendered much more healthy than it was formerly, by a wall which is new built to prevent the encroachment of the ſea, where it formed a ſalt marſh, and by an order that none of the natives manure their cocoa-nut trees with putrid fiſh.

The rains begin here ſometimes in May, but more frequently in June, and for four months are very violent. At Surat and Tellicherry, on the ſame coaſt, Europeans commonly enjoy a good ſtate of health.

Madras is the moſt healthy government belonging to the Engliſh; and in general the air of the whole coaſt of Coromandel is pure and ſalubrious, in reſpect of moſt other parts of India. This is fully evinced by the good health Europeans enjoy, not only at Madras, but at St. David's, Cuddalore, Maſſulapatam, Viſagapatanam, and Negapatnam, the Dutch preſidency on this coaſt.

The rains do not begin on this coaſt until October, and continue during the months of November and December. The more violent the rains are the ſhorter is their duration. The quantity of rain, however, which falls at Madras, is conſiderably leſs than what falls either in Bengal or on the coaſt of Malabar.

If ſhips on their paſſage to India touch at the iſlands of St. Jago, Madagaſcar, St. Johanna, or Molilla, at Culpee in the river Hughly, Batavia,

or

or Bencoolen, thoſe perſons who go on ſhore ſhould always return before night, as thoſe places have proved particularly fatal to Europeans, who ſleep on ſhore, at particular months of the year; and in all unhealthy places, when the ſhip lies near the land, for the preſervation of the men, a fire ſhould be kept burning on the forecaſtle all night, and the ſhip have her awnings ſpread in ſuch a manner, that the influence of the fire and ſmoke may extend over the whole ſhip.

The ſame directions or precautions are equally applicable to any other unhealthy place in the four quarters of the world, particularly on the coaſt of Africa; as Senegal, Gambia, Cachou, Whydaw, Sherbro, Benin, Bonny, Calabar, St. Paul's de la Anda, Benguela, Mazambique, &c. and in all parts of Africa, where the ſoil is either marſhy or watered with rivers or rivulets, whoſe ſwampy oozy banks are overrun with ſedges and mangroves, and noxious weeds; the ſlime, mud, and filth of which ſend forth an intolerable ſtench, eſpecially towards evening; or generally ſurrounded with foreſts, or thickets of trees, impenetrable to refreſhing breezes, and the reſort of wild beaſts.

Swarm with white ants, muſquittoes, cockroaches, ſand flies, bees, locuſts, &c. particularly the muſquittoes, which are intolerable. In ſuch an uncultivated, ſwampy country, one hardly expects to hear of a ſeaſon of health, yet notwithſtanding

ſtanding what is juſt now related; and what is moſt formidable and inconvenient to new comers, and the firſt ſettlers. If any tract of land on the coaſt of Guinea was as well improved as the iſland of Barbadoes, and as perfectly freed from trees, underwood, ſwamps, and marſhes, the air would be rendered equally healthy as in that pleaſant Weſt India iſland; and notwithſtanding the recent accounts from Sierra Leone ſo unfavourable to the new ſettlement, there is not a more delightful ſpot upon earth, nor a ſituation more capable of improvement than it.

The Guinea-worm, as obſerved before, ſeems peculiar to Africa and a few parts of Aſia, and is ſuppoſed to be generated from animalcula, or their ova, contained in the waters of the country; their production in the human body may probably be prevented by drinking theſe waters only that have been rendered wholeſome, by undergoing a previous putrefaction, and expoſition to the open air.

The quickeſt method of ſweetening ſuch water is, by paſſing through a ſeries of veſſels placed under each other ſo that it may fall into each other, and from thence into the receiver, like a gentle ſhower of rain, which will ſweeten it, by each drop in its deſcent having free acceſs to the air.

The guinea-worm is a white, round, ſlender worm, often ſome yards long, lodged in the interſtices

terſtices of the muſcles, commonly in the legs, feet, and hands; ſome are alſo of a tape-like appearance: when it attempts to eſcape through the ſkin it occaſions a ſwelling reſembling a boil, attended with great pain, until its little black head appears in a ſmall watery bladder on the head of the boil.

When this bladder breaks the head of the worm is to be ſecured by tying it to a ſmall roll of linen ſpread with plaſter; and part of the worm is once or twice a day to be gently drawn forth, with care not to break it, and wrapped round this roll until it is brought away entire, when the ulcer generally heals ſoon: but if part of the worm breaks off, the part remaining in the fleſh can be ejected only by painful and tedious ſuppurations in different places.

Dr. Rouppe obſerves, that the diſeaſed of the guinea-worm are infectious. It may at leaſt be prudent in Europeans not to lie in the ſame apartments, and to avoid too free a communication with ſuch negroes as are afflicted with this diſeaſe.

Aloetics and anthelminthics have been recommended as preventatives, and to cure or expel them, to which we cannot ſay any thing; but are of opinion that four or five grains of our antifebrile powders, or even two or three grains, twice or thrice a week, would prevent this diſeaſe. The powder, No. 1, may be uſed by any perſon but

the powder, No. 2, is not ſo fit where a ſcorbutic taint prevails in this diſeaſe, or accompanies it.

The dry belly-ach and guinea-worm are diſeaſes that are not confined to any ſeaſon of the year, and ſeldom prove mortal; fevers and fluxes are the moſt fatal to Europeans here.

The fevers in India, as already obſerved, are of the remitting or intermitting kind. Theſe diſeaſes being in a great meaſure ſimilar in their ſymptoms, progreſs, and effects, to thoſe of other hot climates, may with the diſeaſes of the liver, &c. ſo common there, be referred to the treatment and method of cure, laid down in different parts of this work, for the tropical latitudes of Africa and the Weſt Indies.

TETANUS AND LOCKED-JAW.

Wounds and Amputations.

THE tetanus is a painful and rigid contraction of the muſcles of the neck, and trunk of the body: it is divided into two ſpecies—the opiſthotonus, and the omphroſthotonus; in the former the whole trunk of the body is convulſed, and drawn

drawn backwards in a curve, with the head bent towards the ſhoulders: in the latter the trunk of the body is drawn forwards with the chin to the breaſt. This diſeaſe is moſt frequent in hot countries, and is ſaid to be endemic in South Carolina, eſpecially among the negroes, when they were numerous there.

The locked-jaw is a diſeaſe termed by ſavages *triſmus tonicus*, and is a rigid contraction of the muſcles which raiſe the lower jaw. It may be either primary or ſecondary; that is, either ariſe ſpontaneouſly, without any evident cauſe, or be the conſequence of wounds, or other morbid affections.

Dr. Lind informs us that the *tetanus* and *locked-jaw* are moſt frequent in hot countries; and ſeems to think opium to be the principal remedy, which he recommends the liberal uſe of alone, and, joined to camphor, applied to the feet; and a ſtrong ſolution of the opium applied to the wounded part when originating from ſuch cauſe.

The treatment of theſe ſpaſmodic diſeaſes is nearly ſimilar: if the pulſe admit it bleed; if they happen in conſequence of an irritation from a wounded nerve or tendon, divide it directly, and dreſs the wound to bring on a proper digeſtion and cicatrix.

Dr. Leigh obſerves that there is no diſeaſe in which opium has been more generally recom-

mended than in tetanus; and many phyſicians have depended upon this remedy ſolely for a cure. Chambers, of South Carolina, adviſes opium to be given in form of a clyſter, or combined with oil, and applied externally to the part. Hillary directs it to be united with muſk, which he ſays haſtens the operation, and has been found to produce the beſt effects.

Some very late and accurate obſervers * have found that opium is but little calculated to effect a cure in this dangerous diſeaſe. In a work called "Practical Remarks on Weſt India Diſeaſes," we find mention is made of a caſe where thirty ounces of laudanum were given in a ſhort ſpace of time without removing the ſpaſm or pain attending this diſeaſe.

Mr. John Hunter mentions a number of caſes in which he gave opium in very conſiderable quantities, both internally and externally, without the ſmalleſt benefit. Many caſes of tetanus occurred ſome few months ſince † in the hoſpitals of London, for the relief of which opium was given in large doſes, and frequently repeated, but without any good effects. From theſe circumſtances Dr. Leigh was led to believe that phyſicians have hitherto depended too much on this remedy for a cure; and though he ſays, as he is unable to point

* Mr. John Hunter. † This was in 1785 or 1786.

out

out one more efficacious, ſtill it appeared to him neceſſary to ſhew the fallacy of the preſent practice in this diſeaſe.

Dr. Lind informs us, that Dr. Wright has of late * very ſucceſsfully employed at Jamaica the effuſion of cold water on the naked body in caſes of locked-jaws.

We have obſerved, in the *introduction*, the pains taken by Dr. Home to form a ſcale of the relative value or efficacy of antiſpaſmodic remedies, which, though of the higheſt utility to every practitioner, and the unfortunate patient labouring under theſe dreadful maladies, ſerve to ſhew that too much reliance ſhould not be placed on the preſent antiſpaſmodics in uſe; and ſhould put us upon the reſearch after others of greater efficacy, and more certain in relieving theſe diſeaſes.

Until better are found out and applied, we beg leave to recommend to the candour and liberality of gentlemen of the faculty and others, our *antifebrile powders*, which as far as they have been tried, have turned out to be antiſpaſmodics leſs exceptionable and more generally uſeful than thoſe at preſent in uſe.

The uſe of mercury in the tetanus and locked-jaw has of late, we are informed, been attended with conſiderable ſucceſs. As ſoon as a ſalivation

* In 1783.

is produced, it is ſuppoſed the cure is accompliſhed; and, in order to procure this more ſpeedily, the patient is put into a warm bath: opium is given at the ſame time to procure ſleep. A more particular account of this has lately been laid before the public by Dr. Donald Monro.

Our medicines have proved ſucceſsful even beyond our expectations, adminiſtered as follows: The making muſtard-whey the common drink, or the baſis of it, will be found very beneficial. When milk cannot be obtained, a diſtilled ſimple water, or an infuſion of the ſeeds in the proportion of an ounce or more to a pint of water, will do tolerably well.

Take of the antifebrile powder, No. 2, three packets.
Camphorated tincture of opium, of the London college, commonly called Elixir paregoric xviij ℥.
Camphor vj ʒ.
Hard extract of bark j ℥.

Diſſolve the powder, camphor, and extract of opium, in the elixir or paregoric, and keep this antiſpaſmodic tincture for uſe. One drachm, that is, ſixty grains, is a ſufficient doſe of this potent tincture. This tincture is applicable to many uſeful purpoſes, when cramps, ſpaſms, or convulſive twitching of the nerves, or muſcles attend, adminiſtered internally or externally. In the caſes here directed, and all others to which it is applicable,

cable, it muſt not be given, but when the uſe of the other internal ſpaſmodics are ſuſpended, clyſters excepted.

Take of antifebrile powder, No. 2, three packets.
Acetated cryſtals of mercury j ʒ ſs.
Oil of hartſhorn, highly rectified lvj drops.
Camphorated oil, highly ſaturated with camphor iij ʒ.
Extract of opium j ϑ ſs.
Conſerve of lavender flowers vi ʒ.
Mucilage of gum-arabic, ſufficient to make an electuary.

One drachm of this potent electuary will be a ſufficient doſe, and may be alternated with the undermentioned pills. In dangerous ſpaſms its effects are unparalleled.

Take of antifebrile powder, No. 2, two packets.
Strong ointment of quickſilver j ʒ ſs.
Rectified oil of hartſhorn lvj drops to xc.
Camphor and hard extract of bark and opium, of each iv ʒ.
Camphorated oil, iiij ʒ.
Make into a liniment.

This ointment, or antiſpaſmodic liniment, is to be rubbed in until a ſalivation is excited, or until the ſalival glands are affected, and kept up as the urgency of the ſymptoms may require. The parts moſt affected are alſo to be rubbed, which in ſome

caſes will relieve the ſpaſm before the mouth is affected.

Take of acetated cryſtals of quickſilver ij ʒ ſs.
Antifebrile powder, No. 2, one packet.
Purified aſſafœtida and camphor, of each j ʒ ſs.
Extract of bark j ʒ ſs.
Soft extract of chamomile, ſufficient to make the whole into a maſs of the conſiſtence of pills.

Divide the maſs into thirty parts, and each part into five pills; from three to five of which will be a ſufficient doſe in the moſt urgent caſes.

One or two of theſe pills three times a day, or two in the morning and three at night, are to be taken during the mercurial unction, to expedite a diſcharge from the ſalival glands. In caſes not *ſcorbutic*, theſe pills are uſeful in all ſpaſmodic affections and glandular obſtructions.

Take of antifebrile powders, No. 1 and 2, of each one packet.
Linſeed meal viii ʒ.
Camphor and calomel, of each ij ℈.
Flower of muſtard j ʒ ſs.
Extract of opium, and rectified oil of hartſhorn, of each j ʒ.
Crude aſſafœtida ij ʒ, and vinegar, ſufficient to make into a ſinapiſm, or cataplaſm, for uſe: to be repeated as occaſion may require.

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On this ſinapiſm great dependence may be placed in the locked-jaw, and other ſpaſmodic diſeaſes that require immediate relief, or in caſes that anywiſe threaten the life of the patient.

Take of antifebrile powders, No. 1 and 2, of each a packet.
Aſſafœtida crude iij ʒ.
Opium, muſk, and camphor, of each j ℈.
Rectified oil of hartſhorn j ℈.
Camphorated oil j ʒ.
Infuſion of linſeed viij ʒ.
Make into a clyſter; to be repeated as often as the urgency of the ſymptoms may require.

We may truly ſay the ſame of this clyſter that has been ſaid of the ſinapiſm.

Take camphor and muſk julap of each viij ʒ.
Antiſpaſmodic tincture j ʒ.
Camphor j ℈.
Simple and ſpirituous cinnamon water, of each jv ʒ.

Diſſolve the camphor in the antiſpaſmodic tincture, and mix them well together for uſe.

From half an ounce to an ounce of this mixture may be given every hour in wine-whey, or any convenient vehicle, ſoon as the ſpaſmodic ſymptoms are abated, until the patient is out of danger; or at any other time from the beginning of the diſeaſe that ſhould be thought convenient, ſuſpending

ſuſpending the uſe of any other medicine by the mouth during the exhibition of it.

There are a very numerous claſs of diſeaſes which ariſe from the involuntary contraction of the muſcular fibres, in whatever part of the body they are placed. Theſe involuntary contractions are either continued, or they alternate quickly with relaxation. Hence, with regard to the ſymptoms of ſuch diſeaſes, a very material diſtinction is made, and the former are called *tonic*, and the latter *clinic*.

But the remedies appropriated to the cure of theſe two different orders and their genera, are by authors claſſed together, and antiſpaſmodic is the name they receive, whether we conſider irritation or too great irritability alone as the cauſe of theſe diſeaſes; or continued or alternate contractions as the effects produced.

Antiſpaſmodics not being all entitled to an equal confidence, induced Dr. Home, as before-mentioned, to attempt an arrangement of their comparative merit. We were induced, from the melancholy retroſpect of ſo many trials made by him, with the moſt approved antiſpaſmodics, on ſeeing how few cures were performed by any one remedy, to take every opportunity of putting the antiſpaſmodic properties of our antifebrile powders to the proof, and are warranted from their ſucceſs to recommend them as the moſt ſafe, certain, and general

ral of the kind, uſed alone, alternated or conjoined with others of the antiſpaſmodic kind.

As this treatiſe was going to the preſs, the ſecond edition of Dr. Gilbert Blane's obſervations on the diſeaſes of ſeamen, fell into my hands *: having never ſeen the firſt edition, I was naturally led to conſult this, who recites from the information of Dr. Warren, phyſician to the king, a ſpaſmodic caſe, which I have ſubjoined in his own words, together with ſome others of his own, or that may be properly ſo called.

This eminent phyſician †, in attending a caſe in which he was nearly intereſted, and in which his endeavours were rewarded with ſucceſs, found the greateſt benefit from opium and a warm bath. The opium was given in the form of tincture, in moderate but pretty frequent doſes. The bath was compoſed of milk and water, and the addition of milk was no doubt an improvement; for there is ſomething in this as well as in oil extremely ſoothing to the human nerves.

Dr. Warren had intended to make trial of a bath of oil in caſe this had failed,. He mentioned the following obſervations with regard to the external application of oil, which could only be ſuggeſted by that anxious attention that was paid to the caſe. It was found that the uneaſineſs ariſing

* Publiſhed in 1792. † Says Dr. Blane.

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from the ſpaſm was allayed by conſtantly drawing a feather wetted with oil over the temples, which had an evident effect in lulling the pain and ſpaſm; for when this operation was left off there was an immediate recurrence of theſe ſymptoms.

Mr. Young, ſurgeon of the Montague, conſulted Dr. Blane, then phyſician to the fleet, under the command of Lord Rodney *, in the following caſe:—a ſeaman, belonging to the Montague, who was wounded in the thigh by a ſplinter, which carried away part of the integuments and membrana adipoſa, and lacerated in a ſmall degree the veſtus externus muſcle. The wound did extremely well till the 23d day, when the jaw became almoſt entirely fixed, and the whole muſcles of the wounded ſide were thrown into frequent ſpaſms.

We had immediate recourſe to the warm bath, which gave a degree of inſtantaneous relief, and was repeated twice a day for half an hour. He was ſenſibly better every time; in nine days was entirely free from the ſymptom, and continued afterwards to do well. The only other means taken for this man's recovery, beſides what were uſed with other wounded men, were from three to five grains of opium, which he took every day in divided doſes.

The next was a ſeaman of thirty years of age,

* 1782.

belonging

belonging to the Magnificent, who had the humerus broken and ſhattered by a ſplinter, which entered the detotoid muſcle. Several large portions of the bone was extracted, and the artery was laid bare on the inſide. On the fifth day there came on a large ichorous diſcharge, with a low quick pulſe and depreſſed ſpirits, and the jaws began to cloſe with pain and ſtricture on both ſides about the articulation of the lower jaw. He had every day ſince the accident taken half an ounce of Peruvian bark, combined with opium or rhubarb, according as it made him looſe or coſtive; this was continued, and the part externally was kept moiſtened all round with volatile liniment, to which a fourth part of tinctura thebaica was added: next day the jaw was almoſt entirely fixed, ſo that it was with difficulty that a little wine and water could be introduced with a ſpoon. Mr. Harris, the ſurgeon, now wiſely determining to do ſomething vigorous in this unpromiſing ſituation beat up twelve ounces of opium, moiſtened into the conſiſtence of a cataplaſm, with the thebaic tincture, and applied one half to each ſide of the jaw. The patient this day ſwallowed a pint of the bark decoction, with half an ounce of nitre, and took a diaphoretic draught of twenty drops of thebaic tincture, and thirty of antimonial wine. He had alſo the ſmoke of tobacco thrown up his noſtrils.

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On the third day after the attack he could open his mouth half an inch. The cataplasms were taken off, beat up afresh with the tincture, and applied anew. The bark and other medicines were continued. On the fourth day the stricture and pain of the jaw went entirely off: but the cataplasm and volatile linament were applied for three days longer. The wound produced a laudable discharge; every symptom became favourable, and he continued to recover.

The only other person who recovered from this symptom was a man in the Bedford. Several died of the locked-jaw on board this ship; and as the same means of relief were skilfully employed in all the cases by Mr. Wicks, the surgeon, the success seemed owing more to something favourable in the man's constitution, than any thing peculiar in the treatment, which consisted in the administration of the warm bath, opium and camphor, with mercurial friction on the jaw.

Mr. Bassan, surgeon of the Arrogant, another of the line-of-battle ships that engaged on the 12th of April, 1782, mixed laudanum with the dressings of all the wounds, and no locked-jaw occurred. Dr. Blane very naturally infers from these cases, that opium and the warm bath are the only remedies yet known which are of service in this complaint; and that much will depend on the judicious management of them.

Mr. Wood, ſurgeon of the hoſpital at Jamaica, informed Dr. Blane, that in caſes of the locked-jaw from injuries to ſmall members, ſuch as fingers, he had tried the effect of amputating the part after the ſymptoms had come on, but without any effect in putting a ſtop to them.

Dr. Ruſh, phyſician to the American army in the late war, publiſhed an eſſay on the locked-jaw; in which he recommends, from his own obſervation, Peruvian bark, wine, and bliſters; and to dreſs the wounds with mercurial ointment, in the cure of this complaint. Dr. Blane, from ſome trials he made of the bark at St. Thomas's hoſpital, had reaſon to think well of this remedy in this diſeaſe.

It would be difficult to aſſign a ſatisfactory reaſon why this accident is more frequent in hot than in cold climates. The effect of external heat upon the living body is not to raiſe its temperature, even when the heat of the air exceeds that of the body*: ſo that we are to ſeek after the effects of it in ſome of theſe affections peculiar to animal life. And as the outward temperature of the air does not affect the general maſs of the body, all the effects produced by it muſt depend on impreſſions made on the external ſurface of the body and

* See experiments on a heated room. Philoſophical Tranſactions, 1775, vol. lxv.

lungs;

lungs; and the ſkin, which may be conſidered as a large expanded tiſſue of nervous fibres, endowed with univerſal ſympathy and great ſenſibility, affects every organ and every function of the body, according to the ſtate of the air in contact with it, whether cold or hot, moiſt or dry, pure or vitiated.

This ſymptomatic ſenſibility of the ſkin is chiefly affected by the ſtate of the perſpiring pores on its ſurface; for it is only when theſe are open, that the impreſſion of the air on the ſkin produces catarrhs, rheumatiſms, and internal inflammations in cold climates; and the external temperature in hot climates being ſuch as keep the pores almoſt always open, this ſeems to be a principal reaſon of that univerſal irritability prevailing there; and of the general ſympathy that prevails between every part, particularly as connected with the organs of perſpiration.

The readineſs of one part to be affected by another in hot climates, is well illuſtrated by the ſudden tranſlation of certain diſeaſes. The circumſtances of conſequence in the cure of this complaint, is the keeping up a moiſture on the ſkin, and guarding the ſurface of the body from the acceſs of the air. This is particularly neceſſary with regard to the part itſelf, which ſhould be conſtantly enveloped in warm anodyne, and emollient applications.

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The good effects of this is particularly exemplified in the caſe which recovered under the care of Mr. Harris, who gave the diaphoretic medicine, compoſed of antimonial wine and laudanum, and applied the anodyne cataplaſm to the external fauces. It was remarked, that thoſe wounded men who lay in parts of the hoſpital where they were expoſed to a current of air, were moſt liable to the locked-jaw; and the caſes of tetanus that moſt uſually occur in the Weſt Indies, independent of wounds, are thoſe of ſlaves who fall aſleep in the night-time in open air.

This obſervation of the Doctor, joined to the method of cure propoſed by Dr. Warren, recals to my recollection how little the natives of *Africa* are ſubject to the tetanus and locked-jaw in their own country, that is, of the weſtern coaſt of Africa; which we apprehend may ariſe from the prevailing cuſtom of anointing their bodies with palm-oil or rendered ſuet, which univerſally prevails there, and in which they take great pride, from the gloſs and improved glare of their black ſkin when greaſed.

We know of nothing that could warrant our not drawing concluſions in favour of our medicines in thoſe and other ſpaſmodic affections, after what we have juſt now recited.

In the engagement that our fleet had with the enemy, there were 266 killed; died of their wounds

on board 67, and at the hoſpital 21. Of thoſe who died on board, 16 were carried off by the ſymptoms of the locked-jaw; but of thoſe ſent to the hoſpital, only one. The reaſon aſſigned that ſo few in proportion were affected with it in the hoſpital was, that none of the wounded were landed till near the end of the third week after the principal action; when the danger of this ſymptom was then, in a great meaſure, thought to be paſt; although Dr. Blane has known it to take place in every period from the ſecond or third day till the fourth week. Only three men in the whole fleet recovered from this alarming ſymptom.

Dr. Wright* and Dr. Cochrane†, who ſucceſsfully employed cold bathing in this diſorder, found that it did not anſwer when the complaint proceeded from a wound, particularly the latter; from which it would ſeem that the locked-jaw differs from caſes of tetanus. In 1780, out of nineteen amputations at the iſland of Barbadoes, nine died moſtly of the locked-jaw.

Though the locked-jaw, in conſequence of wounds and amputations, reſembles frequently in its ſymptoms the tetanus, which ariſes without any external incident; yet there are many caſes of the

* See London Medical Obſervations, vol. vi.

† Medical Commentaries, vol. iii. and a Theſis printed at Edinburgh, 1784.

former which differ materially from the violent ſymptoms of the other, as deſcribed by authors.

In moſt caſes of the locked-jaw from wounds, the ſpaſms are not in general ſo violent, nor attended with ſuch exquiſite pain. It ſometimes happens that the convulſive twitchings are even accompanied with a ſort of pleaſure, as in the caſe of the lieutenant of the Montagu, whoſe caſe was related to Dr. Blane by Mr. Young, the ſurgeon of the ſhip, a man of ſkill and obſervation in his profeſſion, and upon whoſe fidelity and accuracy he could rely.

This officer had been wounded in the elbow, at the battle of St. Chriſtopher's, by a ſplinter, whereby the capſular ligament of the joint was injured. On the ninth day ſymptoms of the locked-jaw came on; and ſoon after the whole muſcles of the wounded ſide were affected with frequent convulſive twitchings; which, as he himſelf ſaid, afforded a pleaſant ſenſation, exciting laughing, like an agreeable titillation. He died on the fourth day after it came on, and had no pain to the laſt.

It is to be remarked, that the locked-jaw did not take place in thoſe caſes in which the wounds had a foul and gangrenous appearance more than others; for thoſe that digeſted and cicatrized favourably, were equally apt to be affected by it; and though amputations are moſt liable to this

ſymptom, the ſlighteſt injury, even a ſcratch, will ſometimes bring it on.

It would be difficult, therefore, to eſtabliſh any particular treatment that could tend to prevent accidents of this kind, as Dr. Blane obſerves. Mr. Baſſan, ſurgeon of the Arrogant, ſeems to have purſued a method deſerving of imitation. In addition to the method laid down of adminiſtering our antiſpaſmodic medicines (previous to ſeeing Mr. Blane's valuable book), in caſes of the locked-jaw, we are now diſpoſed to recommend our medicines to be alſo applied in Mr. Baſſan's manner; that is, to mix them as he did the laudanum, with all the dreſſings of the wounds; and likewiſe to give them internally, both by the mouth and anus, and externally in cataplaſms, ointments, and liniments.

Under ulcers, the moſt ſucceſsful method of internal application of theſe medicines is deſcribed; where is remarked their reſtorative qualities in patients debilitated to the loweſt ebb, by a conſtant drain of foul ſpreading ulcers. Under the article ſcurvy, may be alſo ſeen ſome obſervations on ulcers.

Among the many extraordinary caſes that occurred in a practice ſo extenſive as Dr. Lind's, the following deſerves to be noted:—one Tibbet was ſent from his Majeſty's ſhip the Chicheſter, to Haſlar hoſpital, ill of the ſcurvy. A ſevere pain

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in the ſmall of the back afflicted him much; his legs and thighs were ſtrewed with black ſpots, overſpread with dry eſchars, or thin films; from under which there iſſued a thin purulent matter.

He had alſo a very large hard white ſwelling on the fore part of the wriſt, which rendered the flexor tendings of that joint quite rigid. Some days after he came to the hoſpital he was ſeized, every four or ſix hours, with a ſurprizing quick and involuntary contraction of both knees, by which his heels were made to ſtrike upon his buttocks with a ſhock that might be heard at ſome diſtance.

Thoſe contractions ſeized him without any previous pain, or other ſymptoms of their approach; and he often remained in this miſerable condition, with both heels bent back to his hips for ſome hours, notwithſtanding the efforts of four men to extend his legs; until by a motion, as ſudden and involuntary as before, they became of themſelves violently extended, and ſo rigid, that they could not be bent backwards. As he did not ſeem to ſuffer much pain in either of theſe contractions, the Doctor ſuſpected him to be an impoſtor, and therefore ordered both knees to be tightly bound with a linen roller, to ſome ſplints or thin pieces of wood, uſed to ſecure fractured bones, which were placed under his hams.

Notwithſtanding which, ſuch violent and aſto-

niſhing contractions enſued, as quickly broke the wooden ſplints, and brought both heels again in contact with his buttocks.

He afterwards very ſtrictly examined into all the circumſtances attending this poor man's caſe; and found, by his own account, that he had received, about twenty months before, a conſiderable hurt in his back, by falling into the hold of a ſhip; and had ever ſince laboured under a benumbing weakneſs in both his legs.

Upon inſpecting the ſeat of this hurt, there appeared to be a partial diſlocation of the third bone of the vertebræ of the back, with a conſiderable diſtortion of the back bone, and projection of it towards the right ſide.

He continued for ſome weeks to ſuffer great diſtreſs from theſe contractions. Notwithſtanding he daily recovered from the ſcurvy, in two months the lower extremities of his body, though ſtill retaining their natural warmth, became quite paralytic; and the ſwelling of his back bone being much increaſed, he ſoon after expired in a paralytic and conſumptive ſtate.

RABEIS CANINA.

IT is much to be lamented that this horrid diſeaſe, to which mankind is ſo much expoſed, ſhould have ſo long baffled the force of medicine and ſolicitude of phyſicians to counteract its deplorable effects.

The great abilities of Dr. Mead, for a long time, ſupported the reputation of his remedy*, now grown into diſuſe. The turbith mineral of Dr. James, recommended on better ground as a preſervative againſt the hydrophobia, has but too often failed.

The opium and muſk medicine of Dr. Nugent, joined to cinnabar, recommended by the Doctor, in his ingenious treatiſe on the ſubject, though it claims our attention, has not ſucceeded equal to expectation.

The caſe recited by Dr. Fothergill, of canine madneſs, ſo fatal in its cataſtrophe to the patient, Mr. Bellamy, ſo feelingly related by the Doctor; who, with Dr. Watſon, was witneſs to this affecting ſcene, would alone be ſufficient to induce any reader capable of giving aſſiſtance to ſtrain every nerve for the purpoſe. All the remedies hitherto propoſed, either as preventatives or cures, were found by experience to be ineffectual.

* Pulvis antilyſſus.

Dr. Vaughan, of Leiceſter, has been equally unſucceſsful, as appears from his publication, in ſubduing this dreadful malady. The poiſon communicated to the animal fluids by the deadly bite of a mad animal, ſo fatal in its effects, has not found an antidote in the Tonquin* and Ormſkirk remedies; nor in any other hitherto propoſed, on which the practitioner could ſatisfactorily rely; yet there is little doubt of the efficacy of thoſe medicines in many caſes: but the ſcale of relative value of their curative qualities has not been, but undoubtedly ought to be ſettled, by ſome perſon or perſons of great leiſure and ability.

This is a taſk by no means ſuited to our avocations, had we abilities to perform it, which is no part of our pretenſions: the moſt our ſanguine hopes could extend to, would be a medicine leſs exceptionable, from being more uniform in its effects than thoſe related; but even this is more than we dare aſſert, though within the range of our hope.

The ſymptoms are too well underſtood, the mode of cure uſually attempted ſo much better explained by Dr. Fothergill, and the gentlemen of the faculty already mentioned, for us to do more than barely to mention our manner of exhibiting *the antifebrile powders* in ſuch caſes, &c.; pre-

* Muſk and cinnabar.

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vious to which, we beg leave to give ſome general remarks of the ſagacious Dr. Home.

"We have ſeen two remarkable caſes cured by mercury, ſays the Doctor, a *triſmus clonicus* and *ſpaſmus gulæ*; the latter of which ſeemed to yield to no other antiſpaſmodic. Do its effects depend on its general evacuative powers?—I cannot think they do, as in the unſucceſsful caſes it purged much. Do they depend on its ſalivating powers?—There is more reaſon to ſay ſo, as in thoſe trials, and in thoſe of others, its effects do not take place till the mouth is affected, and the ſpitting begins. The ſame appears to happen when mercury is exhibited in the *rabeis canina*. Beſides the general antiſpaſmodic power of mercury, it may act more forcibly in the affections of the neighbouring parts, by a counter-ſtimulus and evacuation made in their vicinity. If there be truth in this obſervation, it points out the diſeaſes in which mercury will ſucceed moſt frequently; namely, thoſe near the head; and it will more confirm us in making further trials with it in the rabeis canina."

Writers on the ſubject ſeem to concur in theſe particulars: that the ſlaver of the mad animal will more or leſs follow the wound made by the teeth, as the clothing of the part bitten is more or leſs denſe through which the wound is made.

That either the wounded part is to be cut out, if the place on which it is inflicted admits, or to be very

very much enlarged: and if the ſize of the wound admits, cupping glaſſes applied to ſolicit a copious flow of blood into the wounded part, to waſh out the poiſon, and at the ſame time divert the abſorption of it, which this method ſeems calculated to effect.

That the wound ſhould be kept open for a conſiderable length of time, and a flux of humours as much as poſſible excreted into it until the patient be deemed out of danger, for the above reaſons.

That where theſe operations cannot be admitted, the actual cautery, the lunar cauſtic, or a veſicatory may be applied to advantage.

The dread of liquids, which is one of the firſt ſymptoms, cuts off in an inſtant a great part of the means of relief by internal means. It is with great difficulty that medicines of any kind, or in any form, after a day or two has elapſed, can be got down. Neither can the patient be properly ſupported under this diſeaſe; for the ſame difficulty precludes ſubſiſtence.

Could this difficulty be ſurmounted, it is probable that ample relief might be obtained from the medicines enumerated, joined to the particulars above recommended, and a ſalivation be brought on by mercurial unction.

However, as Dr. Fothergill ſuggeſted*, there

* See his works, by Elliot.

ſtill

ſtill remains two methods of aſſiſting the patient, though imperfectly; firſt, by clyſters: by this means a large quantity of aliment may be ſupplied; broth, milk, eggs, in various ſhapes, may be exhibited in ſmall quantities, that they may be retained, whilſt larger promote their own rejection.

Secondly, by baths. It is probable, that by this method large ſupplies of fluids may be introduced into the habit, by means of the abſorbent veſſels placed on the ſurface of the body every where.

The ſteam of cinnabar would be worth trial: by this means it would be practicable to impregnate the air in which the patient breathes, ſhould he be incapable of admitting the fume in the uſual mode into the fauces, ſo as to produce the effects of mercury on the parts affected the moſt ſpeedily.

In reſpect of bleeding, I have only one thing to obſerve—if the patient is bled ſtanding till he ſhews a diſpoſition to faint, it may be done without hazard; it may abate a little of that inflammatory diſpoſition, which is the conſequence of continued irritations.

From what has been ſaid of this dreadful diſeaſe, and the unnatural manner in which it preſents us with death, much more horrible than dying; and of the faithful record of the inefficacy of medicine, it cannot be ſuppoſed that we expect

pect more attention ſhould be paid to our medicines than any of thoſe we have enumerated, all of which have cured by turns; other than its ſucceſs in painful, inflammatory, and ſpaſmodic caſes may ſeem to deſerve. This deſperate malady admits of the boldeſt practice; upon which there ſhould be ever this drawback, that, in the attempt to relieve the patient, he ſhould not fall a victim to the remedy.

The following medicines are well calculated to ſuppreſs the irritation and inflammation of the diſeaſe, by counter-irritation; and from their ſadative and antiſpaſmodic qualities being probably the moſt potent and ſpeedy in their operation and effects of any hitherto combined; and they likewiſe ſeem to poſſeſs a ſomething not eaſy to be explained or reaſoned on, but in effect poſſeſs a counter-virus that either expels or extinguiſhes the fomes of the diſeaſe; and, by removing the *ſpaſmus gulæ*, gives the patient not only a fair chance for his life, but alſo for his recovery.

Take antifebrile powder, No. 2, ij ʒ.
Eſſential oil of hartſhorn, j ℈ ſs.
Powdered cantharides, ij ʒ.
Strong mercurial ointment, ʒ ſs.
Hard extract of opium, j ℈ ſs.
Camphor, j ℈ ſs.
Grind them into an uniform ointment.

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This ointment ſhould be rubbed on by the patient, or an attendant, on coming out of the warm bath every day, until the mouth is affected.

Take of antifebrile powder, No. 2, one packet.
Calomel, xxx grains.
Gum kino, xc grains.
Mucilage of gum-arabic ſufficient to make them into a maſs for pills.

Divide this into nine parts, and make each part into ſix pills. Let one be given in the morning, two at noon, and three at night; or two in the morning and at noon, and four at night, in conjunction with the mercurial unction, until the mouth is affected.

Take antifebrile powder, No. 2, one packet.
Domeſtic clyſter, 6ʒ.
Blend them together.

This clyſter is both nouriſhing and well calculated to allay the *ſpaſmus gulæ* attending this diſeaſe, which cuts off all ſubſiſtence by the mouth, by preventing deglutition: to which nothing will contribute more than applying a mixture of equal parts of volatile liniment, and the antiſpaſmodic ointment round the neck, refreſhing it every four hours; when painful, add twenty or thirty drops of thebaic tincture to each repetition.

Take

Take antifebrile powder, No. 2, one packet.
Of muſk and camphor, ij ℈.
Powdered opium, j ℈.
Powdered cantharides, ij ʒ.
Linſeed meal, viij ʒ.
Flower of muſtard, iij ʒ.
Eſſential oil of hartſhorn, j ℈.
Vinegar ſufficient to make them into a cataplaſm to be applied to the feet.

As both this and the above ointment will excoriate the ſkin, they cannot be repeated but at due intervals. The ointment may be ſo managed as to preſerve a daily unction until the mouth is affected, by applying it only to one part at a time; and by that means the firſt excoriation may be healed before the application is repeated on the ſame part.

In the preparation of the cataplaſm, the muſtard, &c. is not to be added until the linſeed meal and vinegar be made hot, ready to apply, in a ſtate ſufficiently diluted, not to be rendered too hard by the powders, which, with the muſtard in a liquid ſtate alſo, are to be laid on the ſurface of the poultice, with the camphor and muſk, then the opium rubbed together with the hartſhorn oil: and laſtly, the antifebrile powder and cantharides ſprinkled on in the moment of application. This poultice had better be laid on a thin woollen cloth, as flannel,

flannel, under which a piece of bladder without flaw, large enough to enwrap the poultice round each foot, and prevent not only the liquid parts, but even the ſteam or vapour to eſcape.

In ſome ſubjects a ptyaliſm will be very quickly raiſed by thoſe medicines, in others more ſlowly; and there is an inſtance of one patient that the *ſpaſmus gulæ* was taken off, the hydrophobia removed, and the patient perfectly reſtored, without the mouth being affected, by the means laid down; and confirmed by the uſe of the antifebrile powders and the cold bath, which were continued for two months after every ſymptom was done away.

When the ſpaſm is removed, and a free deglutition reſtored, the diet ſhould be nouriſhing and reſtorative; calculated to ſtrengthen the ſtomach and inteſtinal canal, and partake of a tonic and antiſpaſmodic quality as much as poſſible. Bark and bitters may be added to the antifebrile powder, and the cold bath, with air and exerciſe: and any wound that the firſt intention of cure required, kept open for ſome months after a perfect cure is effected.

We are of opinion that all that is neceſſary with reſpect of raiſing a ſalivation is, to keep the patient on the verge of ſalivation, and at its firſt appearance to reſtrain it. Diaphoretics ſhould be firſt employed to reſtrain this diſcharge; and if not quickly accompliſhed, it may be ſucceſsfully checked

checked by increaſing the determination to the inteſtines, by means of cooling purgatives; aſſiſted in their operation by emulſions, abounding with vegetable mucilage.

THE BARBIERS.

*THE barbiers is a ſpecies of *palſy* moſt frequent in India:—It diſtreſſes chiefly the lower claſs of Europeans; who, when intoxicated with liquors, frequently ſleep in the open air, expoſed to the land winds. Its attack is generally ſudden, and entirely deprives the limbs of motion. Sometimes all the extremities of the body are affected; ſometimes only part of them.

On the Malabar coaſt this diſeaſe is moſt violent and frequent, and attacks both natives and ſtrangers, eſpecially in the months of December, January, February, and March. During theſe months the land winds blow every morning about ſun-riſe from the neighbouring mountains with remarkable coolneſs; and ſuch, as being tempted by the ſerenity of the ſeaſon, ſleep expoſed to theſe winds, are often ſuddenly ſeized with a very pain-

* Dr. Lind on diſeaſes in hot climates.

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ful ſenſation in the *perioſteum* of the arms and legs. In perſons of a good conſtitution this pain abates as the day advances, and as the air becomes warmer; but in others it continues for a conſiderable time, attended with a weakneſs of the knees, and uneaſy ſenſation in the calves of the legs and ſoles of the feet, eſpecially in any attempt to walk. This is ſcarce ever cured by medicine till after the ſhifting of the monſoon, unleſs the patient can be removed to the coaſt of Coromandel, or any place to the eaſtward of the Balagat mountains, where, by the change of air, they quickly recover.

The natives of the country have a method of putting the patient in a hole dug in the ground, and covering him with ſand up to his neck: this is done in the middle of the day, and he remains there as long as he can bear the heat of the ſand, which is conſiderable.

Camphor and a decoction of guaiac wood have ſometimes produced good effect; alſo the expreſſed bitter oil of the *morgooſe*, an Indian plant. But, notwithſtanding the uſe of the moſt powerful nervous medicines, the patient generally continues paralytic for ſome months, unleſs he is removed into another air.

We recommend the uſe of our antifebrile powders, and the external application of the antiſpaſmodic ointment uſed in the dry belly-ach, with the addition of ten drops of rectified animal oil of

hartſhorn, to the quantity there preſcribed, in conjunction with the camphor and a decoction of guaiac wood. The following pill deſerves attention, and may probably afford relief:

Take antifebrile powder, No. 1 and 2, equal parts, (*i. e.*) xx grains of each.
Camphor, xx grains.
Aſafœtida, xx grains.
Extract of bark, xx grains.
Eſſential oil of hartſhorn, xxx drops.
Eſſential oil of mint, xxx drops,

And as much conſerve of mint as will be ſufficient to form the maſs into the conſiſtence of pills: which divide into five parts, and make each into ſix pills.

Two of theſe pills may be given three times a day; that is, one in the morning, two at noon, and three at night. In caſes where the patient is very much oppreſſed with the diſeaſe, this quantity, or the frequency of giving them, may be augmented; and the antiſpaſmodic ointment liberally applied, particularly to the ſpine and parts moſt affected.

The internal uſe of æther, and friction of the affected parts with muſtard, prepared as for the uſe of the table, and diluted with vinegar, alternated with the antiſpaſmodic unction, together with the ſinapiſm and clyſter ordered for the tetanus, will be alſo found uſeful under ſome circumſtances: the former of theſe, previous to its application

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to the feet, may be actuated with a drachm of powdered cantharides.

Under the head TETANUS and LOCKED-JAW will be found many uſeful remarks, and much information ſupported by the beſt authorities. And, in addition to the diſtinguiſhing ſymptoms before laid down between the nervous and putrid fevers, we beg leave here further to obſerve, that the putrid fever may be alſo known by the ſudden proſtration of ſtrength, fœtid breath, extreme thirſt, quick and weak pulſe, apthæ, or a gangrenous ſtate of the fauces; petechiæ of a dun, purple, or livid colour, vibices, or black and blue marks reſembling bruiſes, an efflorescence upon the ſkin reſembling the meaſles, and a putrid diarrhœa, with horribly offenſive ſtools.

So ſmall is the action of the veſſels in the low nervous fever, that, under a bliſter, there is frequently no appearance of redneſs. It differs likewiſe from an inflammatory fever, being occaſioned by profuſe evacuations, diſſolved watery fluids, and relaxed ſolids; the pulſe, though quick, is here weak and low; the heat of the body but little

beyond the natural, and the ſymptoms in general of the ſpaſmodic kind, independent of inflammation; pale limpid urine, with a dull ſenſe of pain and coldneſs in the back part of the head, and a drowſineſs without ſleep; with an aggravation of all the complaints towards night. When a delirium comes on in this diſeaſe, it is ſeldom violent, but rather a continued muttering, &c. Sometimes miliary eruptions and profuſe ſweats ſtrike out in this fever, but ſeldom give relief.

The low nervous fever, by long continuance of the diſeaſe, break down and reſolve the humours, end in petechiæl ſpots, putrid ſweats, and become contagious, and may be ſaid to have aſſumed a malignant form.

The ſinking of the pulſe, pale urine, uncritical ſweats, confuſion of the head, decay of ſtrength, dejection of ſpirits, and tremor of the nerves, are ſymptoms common to both.

The phrenitis it is a ſymptom in fevers that aſſociates indifferently with inflammatory, bilious, or malignant fevers. The cure of the ſymptomatic phrenitis, is opening a vein if the pulſe can bear it; but if the patient be too low, it is to be attempted by bliſtering. Dr. Whytt obſerved that, by ſhaving the head, twelve or fifteen hours before the application of the bliſter, a ſtranguary was generally prevented. But we have recently

recently related a better method of both bliſtering and preventing a ſtranguary, laid down on good authority, extracted from Dr. Home.

We have already remarked, that a criſis of the fever, terminating in an eruption of ſmall biles on the ſurface of the body, is eſteemed the moſt favourable; it is neceſſary to obſerve that a diarrhœa alſo proves a favourable criſis. A bleeding from the noſe, or from an artery, in the beginning of the fever, has ſometimes ſaved the patient's life; but hæmorrhages, when profuſe, or happening towards the end of the diſeaſe, are fatal. Buboes and a ſwelling of the parotid glands, though not very common, are ſalutary ſymptoms. The feet ſhould be frequently bathed or fomented with warm water, and ſinapiſms applied to them according to the urgency of the caſe.

Take oatmeal, vi ℥.
Flower of muſtard, ij ℥.
Antifebrile powder, No. 2, ij ℈.
And as much hot vinegar as will make them into a poultice, and apply it hot to the feet, with a paper of antifebrile powder, No. 2, ſpread over each poultice as laid on, and remain for ten or a dozen hours, as occaſion may ſerve.

In caſes of delirium with raving, accompanied with ſpaſm or convulſive twitchings, give the following antiſpaſmodic draught:

Take a packet of the antifebrile powder, No. 1.
Of proof ſpirit, iv ℥.
White wine, two pints.
Caſſia ligna, p^d. i ℥ſs.
Gum-arabic, ij ℥.

Grind the three papers of antifebrile powder found in the packet, No. 1, with the proof of ſpirit in a glaſs or marble mortar, beginning with as much of the ſpirit at a time as will bring the powder to the conſiſtence of a ſyrup, and continue to grind it to the greateſt poſſible fineneſs, waſhing off the lighteſt particles with the ſpirit and wine, until the whole is well blended together; then add the caſia ligna and gum-arabic; digeſt in moderate heat for three or four days, frequently ſhaking the bottle until the whole is ſuſpended.

From an ounce to three or four ounces of which may be given every four or ſix hours, in very urgent caſes: otherwiſe, from half an ounce to an ounce and an half, will be ſufficient every ſix or eight hours, making up the draught with ſimple cinnamon-water; or Rheniſh wine-whey drank after it. In all caſes we muſt attend leſs to the doſe than the effects. If a phrenitis attend, and

In very urgent caſes of the delirium, throw up the following clyſter every eight or ten hours alſo:

Take

Take aſafœtida, j ʒ ſs to ij ʒ.
Antifebrile powder, No. 1, a whole packet.
Mucilage of linſeed, xii ʒ.
Diſſolve the aſafœtida in the mucilage, then ſuſpend the antifebrile powder. Inject one half of this at a time.

By ſuſpending, is meant to ſo diffuſe the powder throughout the mucilage, that it may not precipitate before it is injected; and apply a bliſter to the temples, and a bliſter to the back, previouſly rubbed with powdered camphor to prevent a ſtranguary; or what may prove more effectual in a phrenitis, to anoint the ſpina dorſi, or back-bone, with the following liniment: the part above the bliſter up to the occiput, if the bliſter is applied to the back; if not, the whole of the ſpine or back-bone occaſionally:

Take of rectified oil of hartſhorn, ij ℈.
Turpentine oil and camphorated oil, of each two drachms.
Antifebrile powder, No. 2, one packet.
Yellow wax, iv ℈.
Make into a liniment by grinding the oils and powder well together, and ſtirring them into the liquified wax, until quite cold and uniformly mixed; if neceſſary, it may be occaſionally thickened with the yolk of an egg.

A phrenitis being an inflammation of the brain and its coverings; the uſe of the antiſpaſmodic draught is not indicated, but bleeding, if the ſtrength of the patient permit.

Promoting the hæmorrhoidal flux in this caſe, as well as in all diſeaſes of the head, is alſo ſalutary. The hæmorrhoidal veſſels and carotid arteries convey the blood in different directions; and therefore, we may expect by this means a very great revulſion; the phrenitis being in this caſe ſymptomatic, will go off on the ceſſation of the fever.

If a *diarrhœa* comes on in the decline of the fever it may be moderated, but not ſuppreſſed. Though it may be conſidered as critical, yet the patient is uſually too much reduced by preceding evacuations not to bridle it. I have often found when it has been treated in this manner, that, about the uſual time of a criſis, the patient has ſpontaneouſly fallen into a breathing ſweat that has carried off the diſeaſe.

That is, when the diarrhœa has been moderated by the uſe of the antifebrile powders.

If the diſeaſe terminate in a ſuppuration of the parotid glands, let the abſceſs be opened as ſoon as it can be ſuppoſed to have formed matter, without waiting for a fluctuation, or even a ſoftneſs of the tumor, that may never happen; the pus being here ſo very viſcid, that, after it is ripe, the part will feel as hard as if it had not begun.

Sometimes the diſeaſe changes into a dyſentery, which being a very common diſtemper in hot climates, we ſhall aſſign it a particular diviſion of this little treatiſe.

PART

PART THE SECOND.

FLUX AND DISEASES IN HOT CLIMATES.

The Dyſentery and Cholera Morbus.

A DYSENTERY is attended with violent gripings in the bowels, bloody mucus, or purulent diſcharges; or exceſſive pains in the anus, with frequent inclination to go to ſtool, and different degrees of fever.

If the ſmall inteſtines are the ſeat of the diſeaſe, it is known by the pain being a little above the navel, and the blood being more perfectly intermixed with the fæces.

Blood mixed with the fæces is a common, but not an inſeparable, ſymptom; for many have all the other marks without this, at leaſt in the beginning;

ning; and others have blood in their ſtools from various cauſes, without a dyſentery; but from being moſtly attended with blood, it has obtained the name of the *bloody flux*.

The other ſymptoms are more caſual:—

Sometimes a violent bilious fever will terminate in a dyſentery; intermitting fevers of a malignant kind, often end in a bloody flux.

A dyſentery may proceed from two cauſes, different in appearance, but ſimilar in effect; from acrimony generated within the body, or contagion received from without.

The beſt preventative of the dyſentery, and all putrid malignant diſeaſes, is the free uſe of wine, beer, vinegar, and all fermented liquors.

The putrid and contagious nature of a dyſentery ranks it with the malignant and peſtilential diſeaſes; the ſeverity and obſtinacy of this diſeaſe never admit of dividing it into benign and malignant; it is always the latter.

The firſt ſtools are uſually large and bilious; afterwards they are ſmall but frequent, conſiſting chiefly of mucus mixed with blood. Streaks of blood denote the rupture of ſome ſmall veſſels in the rectum, but a more intimate mixture is a ſign that the blood comes from a higher ſource.

This evacuation of blood, which alarms moſt, is the ſymptoms leaſt to be dreaded: for, though the oozing be conſtant, except in a few caſes, the quantity

quantity of blood loſt in the courſe of the diſeaſe is inconſiderable.

Upon the approach of death the ſtools become leſs bloody, that is leſs red; for the blood is then converted into a putrid ichor.

In general, though the motions are frequent, yet the evacuation is not great, except in the advanced ſtate of the flux, when a lientery ſupervenes, in which the aliment paſſes through undigeſted.

By a long continuance of the dyſentery the villous coat of the inteſtines is corroded, and the reſt grow thicker by inflammation. Add to this, that when the ligaments of the colon give way, the rugæ and cells are loſt, and the caſe ends in a lientery, or habitual diarrhœa.

The ſtools therefore chiefly conſiſt of the mucus, which being removed from the inteſtines, their villous coat is abraded, and at laſt voided. Beſides this, we ſhall ſometimes, though leſs frequently, obſerve in the fæces, certain ſubſtances like bits of ſuet, and ſometimes ſmall hardened ſcybala, or round worms. As neither of theſe two comes away all at once, or appears in the beginning, they keep up the irritation and protract the diſeaſe.

Theſe are the chief ſubſtances to be diſtinguiſhed in the ſtools of thoſe who labour under a true dyſentery; for, when purulent matter is voided at firſt, or at any time unmixed, it is a ſign that the diſtemper is of a different nature: not but the inteſtines.

teſtines are liable to ulcerate in the dyſentery, but ſo late, that the matter is either changed into a putrid ſanies, or ſo blended with blood and mucus, as not to be ſeen.

The fæces have all along a putrid ſmell, eſpecially after the mortification begins, and then they are moſt infectious. The gripes are generally vague, but ſometimes there will be a fixed ſpaſm in one part cauſing exquiſite pain.

Although a great deal of wind is vacuated, yet as it is ſoon generated, the gripes and barborigmi become almoſt inceſſant. The ſtools are all preceded by ſharp griping, and ſucceeded by ſome little reſpite; but the motions being ſo very frequent, the patient can have no conſiderable eaſe, unleſs from opiates, ſweating, fomenting the belly, or after a purge.

In the beginning the ſtomach is uſually affected with a nauſea and ſenſe of oppreſſion; and though it be relieved by vomiting, yet the indigeſtion remains, by which all kinds of food turn either ſour or putrid, more wind is produced, and the gripes are continued.

A hiccup ſometimes ariſes from this cauſe, and then is little to be dreaded; but in the low or advanced ſtate of the diſeaſe, when that ſupervenes, it is generally the ſign of a mortification of the bowels, and fatal.

The falling down of the gut, in conſequence of

of the teneſmus, and a ſtranguary from the irritation of the neighbouring parts takes place; the diſeaſe ends in a total proſtration of ſtrength, a low and malignant fever, a ſore throat or apthæ, involuntary and cadaverous ſtools; and, laſt of all, in a releaſe from pain, with all the ſigns of a gangrene.

The duration and iſſue of the dyſentery are uncertain, ſo much depending upon medicine, good air, attendance, and the care the patient takes of himſelf.

If nothing is wanting, and the flux recent, it may be eaſily cured; but theſe favouring circumſtances can only concur amongſt the officers, and others able to procure them.

The caſe is different with the ſailors and private men, who not only apply late for aſſiſtance, but are either expoſed to the weather, or, what is worſe, ſhut up in the foul air of a ſhip or an hoſpital. Added to this, that no diſtemper is more ſubject to relapſe; and that frequent relapſes, by relaxing the tone of the inteſtines, and eroding their villous coat, bring on at laſt an habitual diarrhœa, that hardly admits of cure.

The dyſentery is a diſeaſe to which Europeans are very ſubject in hot climates. We indeed meet with few inſtances of an epidemical or malignant fever which is not in ſome caſes accompanied with a flux.

The flux ſometimes appears by itſelf, often uſhers

uſhers in the fever, more frequently accompanies it; when alone, it is generally milder and leſs mortal than when attended with a fever. A neceſſary diſtinction to be made between fluxes in all climates is, that thoſe which attack perſons in perfect health may be conſidered as diſeaſes idiopathic; and thoſe which attack perſons much weakened by a fever, or otherwiſe reduced to a low condition of body, are properly ſymptomatic, proceeding chiefly from weakneſs, of which the flux is equally a ſmptom and a proof.

When a violent dyſentery ſeizes a perſon in health during warm weather, the following are the moſt proper means of relief: bleeding ſhould be firſt uſed with great caution; a few grains of ipecacuhana be given as a vomit, and an opiate after its operation; a full doſe of ſal catharticum amarum be adminiſtered to cleanſe the inteſtines, and afterwards recourſe be had to ipecacuhana in very ſmall doſes, with opiates and rhubarb. When the pain in the bowels and fever is gone, and the purging much abated, the cold bath will contribute greatly towards a perfect re-eſtabliſhment of health.

Sometimes at the beginning of this diſeaſe, eſpecially when accompanied with a fever, relief has been obtained from diſſolving an ounce of manna and two grains of emetic tartar in a pint of common emulſion, with the addition of half an ounce

of

of ſyrup of poppies, and giving an ounce of the mixture every hour until the bowels are ſufficiently emptied; after which an opiate was given, and then a mixture of the bark with opium, to complete the cure. A few drops of eſſential oil of peppermint is a very proper addition.

Many men of eminence * forbid the uſe of opium in dyſenteries before evacuants have been adminiſtered, becauſe from its tendency to produce coſtiveneſs. An opinion very different is now entertained by phyſicians high in eſtimation; they ſuppoſe that a dyſentery depends on debility, affecting the inteſtinal canal particularly, and recommend the free uſe of opium and wine previous to any evacuation: by this practice we are told that the tormina and teneſmus, ſo common to this diſeaſe, are quickly removed †.

This we know, that our antifebrile powders have exactly theſe effects with the greateſt certainty, without the ſmalleſt danger of penning up the morbid acrimony, which it either counteracts, extinguiſhes, or expels, unaſſiſted with any other medicine, much more expeditiouſly than the united efficacy of the medicines in uſe: ſo that in all caſes where it is adviſeable to ſhun opiates,

* Wepper, Bontius, Sydenham, Pringle, Young, Zimmerman, and Lind, by his practice.

† Leigh.

which

which are ſaid to lock up the morbid matter that medicine or nature might otherwiſe drain off, the antifebrile powders may be ſucceſsfully applied, and depended on alone, or combined with opiates, whoſe bad qualities they counteract.

Their uniform operation is never to exaſperate, but always mitigate, morbid irritability, or its effects on the nerves and vaſcular ſyſtem. Bleeding being premiſed, according to the nature of the ſymptoms, and ſtrength of the patient, as before ſuggeſted,

Take of antifebrile powder, No. 1, two packets.
Mulled wine, 4 pints.
Compound ſpirit of lavender ij ℥.
Diſſolve the powder in the mulled wine, then add the compound ſpirit of lavender.

Take of the cold infuſion of carduus, xij ℥.
Of the above antifebrile wine, iiij ℥.
Eſſential oil of peppermint, xx drops.
Syrup of orange peel, i ℥.
Ipecacuhana, xx grains.
Diſſolve the eſſential oil in the ſyrup, and blend them well together with the antifebrile wine.

Give an ounce or two of this mixture every half or every hour, until it operates as an emetic, and waſh out the ſtomach with chamomile tea.

Take

Take of ſimple cinnamon water, xij ℥.
Of antifebrile wine, iiij ℥.
Pure nitre, ij ℈.
Eſſential oil of peppermint, xx drops.
Syrup of orange-peel, i ℥.
Give of this ſaline draught three or four ounces at a time.

Take of the antifebrile wine, xij ℥.
Terra Japonica, iiij ℥
Hard extract of Peruvian bark, ij ℥.
Extract of logwood, vj ℥.
Eſſential oil of peppermint, 60 drops.
Hard extract of opium, xx grains.
Syrup of orange-peel, iij ℥.
Diſſolve the extracts in the antifebrile wine, and unite the eſſential with the ſyrup, and blend them altogether.

From four to ſix drachms of this antifebrile antidyſenteric balſam may be given once or twice a day; and from ſix drachms to an ounce at night, in very urgent caſes; and proportionably leſs as the ſymptoms indicate.

If the balſam binds the belly before the fomes of the diſeaſe is evacuated, give the following clyſter in the morning, and the balſam again at night.

Take antifebrile wine, ij ℥.
Infuſion of linſeed, vj ℥
Linitive electuary, i ℥.
Eſſential oil of peppermint, x drops.
Eſſential oil of anniſeeds, 60 drops.

Cholera Morbus.

THE cholera morbus is a violent vomiting and looſeneſs, from the bile regurgitating into the ſtomach, and deſcending liberally into the bowels, attended with acute pains, gripings and inflations in the upper inteſtines; great thirſt, heat, and anxiety; a quick and unequal pulſe, cold ſweats, and, in the laſt ſtage, a ſyncope, and coldneſs in the extremities.

It is a very bad ſign when what is diſcharged by vomit, has an excrementitious ſmell.

There is no diſeaſe in which a perſon ſeems nearer death, and yet afterwards recovers.

The cholera morbus and dyſentery are frequent diſeaſes of moſt hot countries. They appear in the ſame ſeaſon with fevers, and ſeem to be only particular determinations of the corrupted humours; to which, if the firſt paſſages give vent, a cholera, or flux, enſues; but if they are retained and aſſumed into the blood, they occaſion an intermitting, remitting, or continued fever.

It ſome times comes on ſuddenly with delirium, attended with conſtant watchfulneſs and vomiting of bile of various colours, but chiefly green.

The antiacid, balſamic, anodyne qualities of the medicines ordered in the dyſentery, for eaſing the pain,

pain, expelling the wind, and acrid ſomes of the diſeaſe, contracting the mouths and healing the eroſions of the veſſels which empty their contents into the inteſtinal canal, during the morbid exacerbation, will be found to exceed any expectation that could be formed previous to trial.

The intention of cure conſiſts in clearing the firſt paſſages of the acrid bile, and paliating the moſt urgent ſymptoms.

The beſt way of evacuating the ſtomach of its contents is, by promoting the vomiting with large draughts of chamomile tea, or decoction of quaſſy, adding a few drops of ſpirit of hartſhorn, and eſſential oil of peppermint, to every ſecond or third draught, which tend to remove the cramps and ſpaſms, which are often very diſtreſſing.

Clyſters of the ſame, repeated as they return, with an ounce of antifebrile wine in each, until the inteſtines likewiſe are perfectly clean; then

Take of antifebrile wine, vj ℥.
Tincture of mint, x ℥.
Eſſential oil of peppermint, xij drops.
Syrup of miconium, ij ℥.
Thebaic extract, viij grains.
Diſſolve the extract of opium in the wine, and unite the oil with the ſyrup; from an ounce to an ounce and a half to be given every four or ſix hours.

Take of mucilage of gum-arabic, vj ℥.
Antifebrile powder, No. 1, xxx grains.
Olive oil camphorated, i ℥.
Make into a clyſter by uniting the oil with the mucilage, and add the powder.

Take of antifebrile wine, iij ℥.
Antifebrile powder, No. 2, one packet.
Eſſential oil of peppermint or common mint, xij drops.
Conſerve of lavender flowers, ſufficient to thicken the whole to a proper conſiſtence, to lay between the folds of a piece of linen on the pit of the ſtomach, without running or ſpreading beyond the limits intended.

The rapid progreſs of this diſeaſe, ſo fatal in its effects, demands every poſſible aſſiſtance from medicine, cloſely followed up; yet, as we before obſerved, there is no diſeaſe in which the patient is ſo near death and recovers ſo quickly. We wiſh it could be alſo ſaid of thoſe fatal diſeaſes, that they do generally recover; we ſhall be able to ſhew that two to one of them who have been treated in this manner, have recovered; and when the attack of a cholera morbus, dyſentery, and even the black vomit, were ſudden and violent, with but little hopes of recovery.

The foregoing medicines for reſtraining the violent reaching in the cholera morbus, are much aſſiſted by embrocating the whole abdomen with warm

warm mulled wine, or anodyne fomentation; and the above anodyne paſte applied to the ſoles of the feet and ankles, will have a ſtrong antiemetic and antiſpaſmodic affect, that may be always depended on in this and ſimilar caſes, in conjunction with their appliçation to the pit of the ſtomach, as already recommended. The following ſymptom in the dyſenteries, mentioned by Dr. John Hunter is worthy of remark:—Is an immediate call to go to ſtool upon ſwallowing any thing either ſolid or liquid, accompanied with a feeling as if what were juſt ſwallowed were running through the bowels. This ſenſation is often ſo ſtrong that the ſick imagine that the food they have taken has really paſſed through them, and are not convinced of the contrary, till they find the diſcharge has been a ſlime or mucus, without any reſemblance to what they had ſwallowed. This ſymptom ſhews great irritability in the bowels, by which a motion excited in the ſtomach is propagated almoſt directly to the anus.

In the dyſentery and cholera morbus, when the violent ſymptoms are abated, great attention ſhould be paid to the diet of the patient, whoſe ſtrength ſhould be recruited with reſtorative, balſamic ſubaſtringent, antiſeptic food and drink, light digeſtable food, and wine properly diluted for drink; light broths, ſago, rice, panada, chocolate, &c.; good old rough cyder, a tea made of ginger and bark, inſtead of common tea, and wine ſharpened

with lemon juice, and lowered with water or whey; chamomile joined to any agreeable aromatic, made into tea, is alſo exceedingly good; mint, ſage, and balm tea; almond emulſion, moſt antiſeptics, bitters, and tonics are ſerviceable, with warm corroborants. The convaleſcents ſhould be denied the uſe of milk, except diluted with lime water, otherwiſe it has been found to renew the gripes, and ſometimes promote a relapſe. Fermented liquors of the malt kind arē not congenial to this diſorder, except in old dyſenteries of long ſtanding. Notwithſtanding that this is a general opinion, I have known bottled porter to be eagerly deſired, much uſed, and very beneficial to convaleſcents, in theſe latitudes. And alſo the following electuary.

Take of columbo root,
Extract of bark,
Extract of logwood,
Gum kino,
Nitre,
} of each ℥ſs,
Extract of quaſſy, ℥ſs.
Antifebrile powder, No. 1 and 2, of each j ℥.
Eſſential oil of peppermint, c drops.
Aromatic ſpecies, j ℥.
Syrup of garden poppies, ſufficient to make them into an electuary. S. A.

From half a drachm to a drachm of this electuary may be given once, twice, or thrice a day, and waſhed down with a glaſs of peppermint water,

as a warm corroborant, aſtringent medicine, equally antiſeptic and antiſpaſmodic; and well calculated not only to ſtrengthen the bowels, but the whole ſyſtem; being alſo a good corrector of the bile and promoter of digeſtion. And ſhould any latent acrimony of the diſeaſe remain in the ſyſtem, there is no doubt of its either extinguiſhing it or expelling it to the ſurface, and detaching it from thence; the chronic ſtage uſually depending upon a laxity of the bowels.

The removing the patients into a purer air as early in the attack of theſe diſeaſes as poſſible, will much influence their recovery, and confirm it in a convaleſcent ſtate.

In the chronic ſtate of the dyſentery, laxatives may be alternated with ſuch ſubaſtringent, tonic, antiſeptic, anodyne medicines, as the one will prevent a relapſe into a bad ſtate, while the other preſerves a drain for any thing acrid or offenſive that may be ſtill generated. Vomits have been ſtrongly recommended, and it is uſual to give them in the beginning. It ſhould always be remembered that to give an emetic, is not a thing innocent in itſelf; it muſt always do good or harm; it is moſt beneficial when it proves purgative; ſurely then a purgative that does not produce the diſtreſſing ſickneſs of an emetic, had better be tried at firſt, as the more ſpeedy way of procuring relief. Aſtringents are moſt uſeful, when the ſtools are

frequent, copious, and without gripes. If the diſeaſe terminates in a teneſmus, or if the ſymptoms prove troubleſome, it is often removed, and always relieved, by our anodyne clyſter: in caſes that require their being given frequently, they may be given in a more dilute ſtate, to waſh off adhering acrimony: they ſhould not be given oftener than once a day.

DIARRHŒA.

A DIARRHŒA is a too frequent diſcharge of the contents of the inteſtines, without a violent degree of pain and ſickneſs; the effects are loſs of appetite, ſometimes a nauſea, fever, weak pulſe, dry ſkin, and a continual thirſt.

Great caution ought to be uſed in ſtopping it, eſpecially in full habits, as it is moſtly the ſalutary efforts of nature to throw off the offending cauſe; and the obſtructing this cauſe uſually brings on a fever.

If the patient is plethoric, and in the prime of life, bleed, then give an emetic, which may be occaſionally repeated. The diet ſhould be ſago, rice, gruel, ſea-biſcuit, panada, gum-arabic, diſſolved in the common drink, &c.

In

In caſe, bad digeſtion has occaſioned this diſorder, the Peruvian bark may be preſcribed to advantage, after the primæ vitæ has been previouſly cleared.

When a purging ſucceeds to an obſtructed perſpiration, the flow of humours ſhould be directed from the inteſtines to the ſkin; which purpoſe will be very well anſwered by the following pills:

Take antifebrile powder, No. 2, xxij grains.
Ipecacuhana, xxij grains.
Hard extract of bark, xxiv grains.
Hard extract of opium vi grains.
Eſſential oil of peppermint, xxiv drops.
Make into a maſs of the conſiſtence of pills with conſerve of roſes, and ſyrup of ſaffron.

Divide the whole into ſix parts, of each make three pills. Give one in the morning and two at night; encourage perſpiration with whey, and other warm diluting drink.

If the ſordid fomes of the diſeaſe have not been evacuated previous to a courſe of the pills, adminiſter the following powder in any convenient form, or any proper vehicle:

Take rhubarb, xv grains.
Caſcarrilla bark, j ℈.
Magneſia alba, j ʒ.
Bitter purging ſalts, powdered, ʒ ſs.

This

This powder will have a very good effect: the purging ſalt will briſken the operation of the rhubarb, which, whilſt it acts as a cathartic, will operate in conjunction with the caſcarilla as a tonic. In the mean time the magneſia will abſorb and neutralize the acid in the inteſtinal canal. Perhaps mucilage of gum-arabic may be equal to any vehicle it could be given in.

[See the article diarrhœa, under general obſervations on fevers, and page]

Dr. Houlſton, of Liverpool, in his pamphlet, recommends the friction of mercurial ointment on the abdomen, as a cure for old obſtinate fluxes.

Whatever objections may lye againſt the uſe of Peruvian bark in fluxes, there are other bitters not only ſafe but uſeful in reſtoring the tone of the bowels; of this kind are ſimarouba, quaſſia, and chamomile flowers.

Dr. Gardner, of South Carolina, recommends a weak decoction of ſimarouba as a ſpecific, in the quantity of a ſcruple to a pint of water. A tincture of gentia and caſſia ligna in port wine has proved highly advantageous.

PART

PART THE THIRD.

AGUE AND DISEASES IN HOT CLIMATES.

Intermitting Fever.

AN intermittent fever is known by a violent ſhivering or cold fit, attended with a head-ach, laſſitude, ſmall, quick, and weak pulſe, pain in the back, yawning and ſtretching; by a nauſea, with an inclination to vomit, a quickneſs of breathing; the urine is crude, thin, and diaphanus, without any ſediment: theſe ſymptoms abating a little, are ſucceeded by great heat, and afterwards by profuſe ſweats, which terminate the fever for that time. On the next day the patient is feeble and cold, his urine turbid, and lets fall a copious ſediment of the latteritious or brick-duſt kind.

The intermittent fever, or ague, is commonly divided

divided into the quotidian, the tertian, and the quartan. In the quotidian ague there is a fit once in every twenty-four hours; in the tertian there is an apyrexy, or intermiſſion, for at leaſt twenty-four hours; it is called a quartan when the patient is two days free from the fever; and this is more difficult to cure than a tertian or quotidian, which laſt is often cured by ℥ſs. of good bark.

Quartans frequently extend from autumn to ſpring. An autumnal ague is more difficult to cure than a vernal. Quotidians, and double tertians, eſpecially when they anticipate the hour of their return, are apt to change into continual fevers, and are then attended with great danger.

In full habits in the ſpring bleeding is often neceſſary; a vomit of vinum ipecacuhana ſhould ſcarce ever be omitted; after which inject an emollient clyſter to empty the bowels.

If a nauſea or ſickneſs attend, give an emetic, but if not, the tinctura ſacra, or Rufus's pills, which are preferable; give them in the intermiſſion, immediately after the fever has ceaſed, ſo that its operation may be over by the return of the next fit.

If the paroxyſm appears regular, paſſing through the cold, and hot, and ſweating ſtages, and the intermiſſion is attended with an even, ſteady, ſoft pulſe, and well charged urine, we may boldly venture to throw in the bark; but otherwiſe it is of great conſequence to be wary in the exhibiting of it;

it; if not well-timed, might be productive of very dangerous obſtructions.

Take decoction of the bark, i ℥. to ij ℥ ſs.
Spirituous cinnamon water, ij ℥.
Balſamic ſyrup, i ℥. m.

Opium has been found very effectual in removing intermittent fevers. The proper time of giving it is half an hour after the commencement of the fit. The following is an agreeable form:

Take barley water, ℥ ſs.
Thebaic tincture, xx drops.
Nutmeg water, and
Syrup of mecenium, of each ʒij. m.

The opium relieves the head-ach and fever, and promotes a profuſe ſweat. Dr. Lind, who introduced this practice, gives the opiate in about two ounces of tinctura ſacra, when the patient is coſtive, ordering the bark immediately after the fit. Thus the fit is ſhortened, and the inteſtines cleanſed before giving the bark.

If the bark ſhould vomit or purge, a few drops of tincture thebaic may be added to each doſe; one ounce and an half is generally ſufficient to put a ſtop to the fever; but it is to be continued daily, though in ſmall doſes, till the patient has recovered his ſtrength.

The firſt indication of cure in an irregular ague,

ague, is to bring it to be regular: this is done partly by ſaline or emetic, and laxative medicines.

After an ague is cured by the bark, no purgative, or even laxative, ſhould be given for ſome length of time. When the viſcera is perfectly ſound, cold bathing may be of great uſe to prevent the return of thoſe fevers.

Should the bark agree in no form by the mouth, inject the following clyſter:

Take of extract of bark, iij ℈.
Antifebrile powder, No. 1, one packet.
Mulled wine, viij ℥.
Infuſion of linſeed, xxii ℥.
Oil of aniſeeds, xxx drops.
Diſſolve the extract of bark and the antifebrile powder in the mulled wine; add them with the oil of aniſeeds to the infuſion of linſeed: make this quantity into three clyſters, and give them every four, ſix, or eight hours, as the urgency of the ſymptoms indicate.

If contrary to expectation, this clyſter ſhould bind the belly; when that is the caſe, give the laxative clyſter, No. , interpoſed between, as often as required.

The beſt form of giving the bark is in powder, in which its conſtituent parts ſeem to be in the moſt effectual proportion. For covering the taſte, different patients require different vehicles: extract

tract of logwood, extract of licorice, aromatics, acids, Port and Rheniſh wine, porter, ſmall-beer, milk, butter-milk, mucilage. It may be given in the form of an electuary with currant-jellies; or with rum or brandy, or any other ſpirits.

Take hard extract of Peruvian bark, xx grains.
Extract of logwood and licorice, of each xv grains.
Mucilage of gum-arabic enough to form them into a bolus.

In the preſent practice the bark is given from the very commencement of the diſeaſe, even without previous evacuations; which, with the delay of the bark, or under doſes of it, by retarding the cure, often ſeemed to induce abdominal inflammation, ſcirrhus, jaundice, hectic, dropſy, &c. ſymptoms formerly imputed to the premature or intemperate uſe of the bark; but which are beſt obviated by its early and liberal uſe. It is to be continued not only until the paroxyſms ceaſe, but till the natural appetite, ſtrength, and complexion return. Its uſe is then to be gradually left off, and repeated at proper intervals to ſecure againſt a relapſe; to which, however unaccountable, independent of the recovery of vigour, there often ſeems to be a peculiar diſpoſition.

Although Peruvian bark acts powerfully as an aſtringent, as a tonic, and as an antiſeptic, yet thoſe principles

principles will by no means explain all the effects derived from it in the cure of diſeaſes. The antiſeptic powers of vinegar and bark united, are more than double the ſum of thoſe taken ſeparately. The aſtringent power of the bark is increaſed by acid of vitriol; the bitter taſte is totally covered by it.

Practitioners have differed much with regard to the mode of its operation. Some have aſcribed its virtues entirely to a ſtimulant power; but while the ſtrongeſt and moſt permanent ſtimuli, have by no means the ſame effect with bark in the cure of diſeaſes, the bark itſelf ſhows hardly any ſtimulant power, either from its action on the ſtomach, or any other ſenſible parts to which it is applied.

From its action on dead animal fibres, there can be no doubt of its being a powerful aſtringent; and from its good effects in certain caſes of diſeaſe, there is reaſon to preſume, that it is a ſtill more powerful tonic.

To this tonic power ſome think that its action as an antiſeptic is to be entirely attributed; but that, independently of this, it has a very powerful effect in reſiſting the ſeptic proceſs, to which animal ſubſtances are naturally ſubject, appears beyond all diſpute, from its effects in reſiſting putrefaction, not only in dead animal ſolids, but even in animal fluids, when entirely detached from the living body.

Many

Many practitioners therefore, are diſpoſed to view it as a ſpecific. If by a ſpecific, we mean an infallible remedy, it cannot indeed be conſidered as entitled to that appellation, but in as far as it is a very powerful remedy; of the operation of which no ſatisfactory explanation has yet been given, it may with great propriety be denominated a ſpecific. And whatever its mode of operation may be, there can be no doubt that it is daily employed with ſucceſs, in a great variety of different diſeaſes.

It often pukes or purges, and ſometimes oppreſſes the ſtomach. Theſe and many other effects that may take place, can in general be counteracted by remedies particularly appropriated to them. Vomiting is often reſtrained by exhibiting it in wine; looſeneſs by combining it with opium; oppreſſion of the ſtomach, by the addition of an aromatic.

After having done ſo much juſtice to this powerful drug, an increaſing knowledge of which has grown upon us for upwards of 150 years; the extenſive uſe of which has been ſo great in medicine, that it has become an article of conſiderable commerce both to the Spaniards, and thoſe European nations who purchaſe it from them, as to make the planting and cultivating of whole woods in South America neceſſary to ſupply its demand.

Notwithſtanding which, we have ſeen that the experiments of the ableſt chemiſts, nor the obſervations of phyſicians of the firſt eminence, have not been able in all this time, ſatisfactorily to explain its action, or mode of operation. However extraordinary this may appear, it is indiſputably true.

Surely then there ſhould be ample allowance made for us and for our medicines, if we have not been able to furniſh the reader with as full and ſatisfactory an explanation of the action and operation of them, as he might at firſt ſight expect, which bid fair to approach as nearly to the character of ſpecific in many diſeaſes incident to Europeans in hot climates, and probably to as many more in theſe temperate regions, as any that have hitherto deſerved that ſhare of credit with the world.

*How the benefits of opium were diſcovered in certain diſeaſes, ſeem rather difficult to explain: but certain it is, that this remedy has been long uſed in intermittent fevers; and ſome very old writers† depended wholly on this remedy for a cure‡. Many have adviſed it to be given before the hot ſtage, or at the moment of its appearance; by which, it is ſaid, the diſeaſe has often been re-

* Dr. Leigh. † Schulz, Dalberg.

‡ Paracelſus, Etmuller, and others, quoted by Dr. Leigh.

moved,

moved*. Others are of opinion, that it ſhould be adminiſtered one hour before the hot ſtage, by which the paroxyſm is ſhortened, and the patient is freed from pain.

From ſome very late experiments†, it is found that, given in the hot ſtage, opium, as well as volatile alkali, has been obſerved to allay the heat, thirſt, head-ach, and delirium, to induce ſweat and ſleep, to cure the diſeaſe with the leſs bark, and without leaving abdominal obſtructions, or dropſy.

It appears that Dr. Lind gave volatile alkali alone, that is the vehicle excepted, which was cordial julap, to a patient, who, in half an hour after being ſeized with a fit of the ague, became delirious, then comatoſe, at length ſpeechleſs; and who, in two hours afterwards, recovered his ſenſes, ſo as to ſwallow with eaſe two ounces of tinctura ſacra; and as ſoon as the ſweat had abated, without waiting for the complete effect of the purge, half a drachm of the bark was thrown in every four hours. He began taking the bark three hours after he had taken the tinctura ſacra; but before he had taken five drachms of the bark, he was ſeized with a ſecond fit, and in like manner became delirious, comatoſe, and ſpeechleſs.

Sinapiſms were applied to his feet, and other

* Murray. † Dr. Leigh.

irritating applications uſed, until the fever terminated by a plentiful ſweat. He was ordered a drachm of the bark every hour; he ſoon took two ounces of it, which had ſo happy an effect, that the fever left him entirely, and he had not any ſubſequent dropſy, jaundice, head-ach, or great weakneſs, which either the continuance of the fever, or its repeated attacks often brought upon others.

The Doctor obſerves, that even a delirium in the hot fit is not increaſed by opium, though opium will not remove it. That if the patient be delirious in the fit, the adminiſtration of the opiate ought to be delayed, until he recovers his ſenſes. There can be no doubt that this was the Doctor's reaſon for adminiſtering volatile alkali, in the caſe here recited, inſtead of opium.

Our medicines require none of thoſe precautions. Theſe effects perhaps ſuggeſted the uſe of opium in typhus fevers; and we find that many phyſicians of the higheſt eminence depend now principally on this remedy for a cure. Dr. Cullen, in his Materia Medica obſerves, that opium may be uſed in this diſeaſe as a ſtimulant, becauſe the vis vitæ is very low; but when the remiſſions are diſtinct, it ſhould then be adminiſtered as a ſadative.

COMPARATIVE EFFECTS OF OUR MEDICINES.

OUR medicines, employed in the ſame intention of cure as the *bark*, does not require the previous evacuations, ſtill ſo much inſiſted on by practitioners. They do not require the ſame attention in fevers, to keep the bowels open, to evacuate the redundant bile, having an antibilious effect, and an unerring tendency to expel all kinds of acrimonious matter, or extinguiſh it.

Like the bark, they, in the confluent ſmallpox, *(a diſorder ſo fatal among Negroes in the Weſt Indies)*, promote the languid eruption and ſuppuration, diminiſh the fever through the whole courſe of it, and prevent or correct putreſcence and gangrene: they do not, like the bark, require previous evacuation in contagious dyſentery, from their antiacrid, antiputreſcent qualities.

They do not, like the bark, induce abdominal inflammation, ſcirrhus, jaundice, hectic, dropſy, difficulty of breathing, &c. which ſome of the ableſt practitioners ſtill inſiſt in attributing to the improper uſe of the bark, which they alledge to be a medicine prone to exaſperate thoſe diſeaſes that it does not relieve.

Adminiſtered in the cold ſtage, in the hot ſtage, and before the fit in intermittents, they have had the happieſt effects: given in the hot ſtage, they allay the heat and thirſt, head-ach, and delirium; induce ſleep and ſweat, and generally cure the diſeaſe, without the aſſiſtance of bark, or danger of relapſe; yet they do not preclude the uſe of the bark, but perform the cure with leſs bark, and without leaving abdominal obſtructions. Here their effects are ſimilar to opium, but much more to be relied on.

In obſtinate caſes, where the bark alone has failed in the cure of agues, our medicines, either joined to the uſe of the bark, or alone, has quickly effected a perfect cure.

The bark has been found an excellent remedy in pure ſpaſmodic diſeaſes; but as it is ſaid to be hurtful in all inflammatory caſes, we muſt take care that ſuch a ſtate of the body does not accompany the diſeaſe, when we order the bark.

The bark, though a bitter, aſtringent, and antiſeptic medicine, cannot be employed ſucceſſfully in the cure of the ſcurvy, ſo many bad ſymptoms in this diſeaſe forbid it; in which our medicines are ſpecifics, and accompanied by them may be ſafely employed.

Our medicines are not like moſt of the preparations of *antimony*, uncertain in their operation, and unmanageable in their effects, but conſtant and uniform;

uniform; the reins being always in the hands of the phyſician to bridle them at pleaſure.

They agree with the moſt eſteemed preparations of antimony, in promoting diaphoreſis, vomiting, and purging, and in the cure of certain ſcrophulous diſtempers, and deffodations of the ſkin; and excel them in all caſes when a copious urinary diſcharge may promote a favourable criſis; and ſeem parallel in their febrifuge qualities, without the inconveniences ſometimes attending the exhibition of antimony.

Although it is certainly, and not without reaſon, that antimonials which have long been found uſeful in all theſe diſeaſes ſo often miſtaken for the ſcurvy, have been lately recommended in the cure of the ſcurvy alſo; yet it is reaſonably to be expected that medicines like ours, poſſeſſing all their good effects, without any of the inconveniences attending the exhibition of antimony, ſhould ſuperſede its uſe; but when properly combined with correctors, not expoſed to decompoſition, and when taken into the ſtomach, and blended with the animal juices, antimony is an efficacious medicine.

Our medicines poſſeſs in an eminent degree ſome of the beſt effects of *mercurial* preparations; as in promoting circulation throughout the animal ſyſtem, and moſt of the fluid ſecretions. Like mercury they remove obſtructions in the excretary

glands, in ſcrophulous and cutaneous caſes; and in obſtinate chronic complaints, much exceed mercurial remedies, particularly ſuch as ſalivation has failed to remove.

Like mercury they do not depend upon the quantity of ſenſible evacuation; often curing inveterate foulneſſes of the ſkin, without any other ſenſible excretion, but a gentle increaſe of perſpiration and urine.

A virulent gonorrhœa has been frequently cured by an injection made with our medicines, when calomel, white precipitate, and white vitriol have failed.

In the *rabies canina*, like mercury, they have had the happieſt effects; and what is very remarkable, that, in caſes of this ſort, their good effects have always been attended with a ſenſible evacuation of ſaliva; and have been equally ſucceſsful with mercury in the tetanus, or locked-jaw, and, in fact, much more ſo in both.

In hæmorrhages, and in putreſcent and ſcorbutic diſeaſes, where mercury would exaſperate the ſymptoms, our medicines are next to infallible in the cure, particularly in the ſea-ſcurvy, when joined to the liberal uſe of vegetable acids, bitters, and aſtringents.

Like *opium*, our medicines, in their internal and external effects, vary in different conſtitutions, with reſpect to their ſadative, anodyne, antiſpaſmodic

modic effects; but in general are more uniform in their operation, and more conſtant in their effects. But it muſt at the ſame time be acknowledged, that they in general poſſeſs all thoſe effects in an under proportion, except the antiſpaſmodic.

Their good effects in intermittents, are ſimilar to opium, and bark combined. In active inflammation, to opium and mercury, and in the ſmall-pox before the eruption and after, they allay the pain of ſuppuration, and promote the ptyaliſm.

In allaying the tormina and teneſmus, and obviating the laxity and debility of the bowels in the dyſentery, their good effects can only be exceeded by opium; which they otherwiſe ſurpaſs in being unattended with any of its inconveniences; and which inconveniences we have found them to correct when joined with opium.

Their uſe in combating the ſymptoms, and counteracting the effects in different ſpaſmodic affections, infinitely exceed opium, with all its auxiliary combinations.

So far from being improbable, we have reaſon to conclude, from judging of its effects, that they poſſeſs a great majority of the beneficial effects of opium.

Opium has been recommended, when diſſolved in brandy, by Dr. Milman, for the cure of the ſea-ſcurvy; probably from perſpiratives being found beneficial in the cure of that diſeaſe: the

the trial of our medicines in this hideous deplorable diſeaſe, would ſoon ſuperſede the uſe of it, or any other of this claſs.

The qualities of *camphor*,—a drug that modern practice lays much ſtreſs upon, is to be found alſo in our medicines, whether we conſider it as a medicine efficacious in malignant fevers, acute or chronic diſorders, proceeding from an acrid or putreſcent ſtate of the juices. Like camphor, they correct acrimony, expel morbific matter through the cutaneous pores, and prevent an inflammation or ſphacelus, where there is previouſly any diſpoſition thereto; by ſtrengthening the veſſels, and reſtraining hæmorrhages happening in acute fevers.

Or, as an antiſpaſmodic; in which laſt, our medicines have infinitely greater advantages than even in the preceding intentions, where the effect of camphor, from not being of any long duration, can never be juſtly eſteemed a rival in ſpaſmodic affections.

Nor *muſk*, either as an antiſpaſmodic or febrifuge; which combined with opium in a tetanus, and mercury in the rabies canina, by Dr. Wall, has been found a medicine of conſiderable efficacy, which in theſe diſeaſes had often baffled the force of other medicines; with him it produced the happieſt effects in two perſons labouring under a ſubſultus tendinum, extreme anxiety, and want of ſleep, from the bite of a mad dog; who were relieved by taking

two

two doſes of muſk, each of ſixteen grains. Like ours, medicines in caſes where this medicine could not be adminiſtered by the mouth, on account of ſtrong convulſions and hiccups, attended with the worſt ſymptoms, were removed, when injected by clyſter.

Notwithſtanding which, we are told in the Eſſays and Obſervations, phyſical and literary, that a ſurgeon in Jamaica, who depended on opium and muſk in the tetanus and locked-jaw, had loſt ſome of his patients; who changed his practice by reſorting to mercury, which anſwered his expectations. His method was rubbing in mercurial ointment, and the ſymptoms went off, when the mouth was affected; which correſponds with the effect of our medicines on ſimilar occaſions, in a great degree.

Dr. Home informs us, that *flowers of zinc* have been much uſed, ſince Gaubius's detection of the quack remedy uſed by Ludemanus: he was encouraged to try it on ſeveral hoſpital patients as an antiſpaſmodic remedy; the ſucceſs of which juſtified its arrangement in the ſecond claſs, as related in the introduction to this work, where it ſeems to be nearly on a par with *cantharides* in bliſters, who exhibited them from two or three grains to forty. Its good effects in the epilepſy, and as an antihyſteric, entitled it to the appellation of an antiepileptic.

Zinc

Zinc has been tried by Dr. Blane, in caſes where there could be little or no ambiguity with regard to the efficacy of the medicine, as the diſeaſe had laſted from two to ſix months; and there was no other circumſtance of change in the ſituation or treatment of the patients that could account for their recovery.

Flowers of zinc two grains, thrice a day, were given. In ſome it produced the deſired effect, without the leaſt ſenſible operation in the ſtomach and bowels. If this doſe did not ſtop the fits after a few days trial, it was increaſed to three grains, which in ſome would produce a little ſickneſs. He found that four grains ruffled the ſtomach a good deal; but if the patient was gradually habituated to it, even more than this may be given without any inconvenience. The caſes to which he thinks this medicine adapted are, thoſe that have extremely diſtinct remiſſions, with no ſymptoms of bile, or any local affection. He found ginger and capſicum uſeful additions in hot climates to the flowers of zinc. Mr. Telford, ſurgeon of the Yarmouth, informed him that he had cured ſeveral intermittents that had baffled the bark by means of ſalt of zinc; that is, white vitriol in doſes of five grains every four hours, in the intermiſſion.

The ague has been ſo formidable a diſeaſe, that while the whole Materia Medica has been rumaged by phyſicians for a remedy, and the vulgar reſorted

reſorted to many expedients for their relief, religion in ſome countries has been invoked, and refuge taken in charms diſtributed to her votaries, combined with ſo many injunctions, that when the patient was not cured, his non-compliance with the conditions was the cauſe; when nature performed it, the charm bore away the credit.

The principal of the remedies reſorted to by the vulgar are brandy, nutmeg, brimſtone, oyſter-ſhells, paper, uſquebaugh, with lemon-juice, wine and egg, with a ſpoonful of houſeleek, plantain-juice, ſpirit of turpentine, juice of rue, juice of nettles, juice of groundſel, decoction of cinque-foil, decoction of ſparemint in milk, infuſion of horſe-radiſh in ſtale beer, ſtrong beer in which broken glaſs, heated red hot, has been quenched, a ſea-water vomit, the ſnuff of a candle with nutmeg, the juice of a large lemon, bay-leaf powder, the bark of the aſh, ſalt of wormwood, miſletoe of the oak, the inner bark of the elm, calamus aromaticus, gin and muſtard ſeed, a common ſpider wrapped up in a raiſin, five grains of cobwebs.

External applications—a hard egg, ſplit and applied hot to the wriſts, camphor and ſaffron to the pit of the ſtomach, the back bone rubbed with garlic, ſpiders and tobacco rubbed, or applied to the wriſts or feet, mouſe-ear and ſhepherd's-purſe the ſame, ſun-due, wall-pepper, and other plants with vinegar and ſalt.

Arſenic

Arſenic in ſmall quantity, has been known to be very powerful in removing the ague; a remedy which incautiouſly uſed, would prove worſe than the diſeaſe, and often productive of the moſt alarming ſymptoms.

Arſenic has for many years been uſed by an Iriſh family of the name of Plunkett, externally, in the cure of cancers. Mr. Le Febure is the reputed introducer of a ſolution of the white cryſtals of arſenic, for internal uſe in the cure of cancers.

In Lincolnſhire, and the fenny counties, arſenic has been, it is ſaid, ſucceſsfully employed in the cure of agues; under the name of *the ague drop*, *the arſenic drop*, and *taſteleſs ague drop*.

Dr. Fowler, of Stafford, in the *Medical Reports*, directs, that 64 grains of arſenic, reduced to a very fine powder, and mixed with as much fixed vegetable alkali, ſhould be added to half a pound of diſtilled water in a Florence flaſk, placed in a ſand heat, and gently boiled till the arſenic be completely diſſolved; half an ounce of compound ſpirit of lavender to be added to the ſolution when cold, and as much diſtilled water, as to make the whole amount to a pound.

This ſolution taken in doſes, regulated according to the age, ſtrength, and other circumſtances of the patient, from two to twelve drops, once, twice, or oftener, each day, has been found a ſafe and efficacious

cacious medicine in the cure of agues and remitting fevers, and periodic head-achs.

Mr. Milner, profeſſor of chemiſtry at Cambridge, we have been informed, prepares a very pure *ſal arſenici*, readily ſoluble in water, which has been employed with great ſucceſs by practitioners in the neighbourhood.

Macquer, Beaumé, Morveau, &c. particularly the former, who is the acknowledged diſcoverer of the true arſenical neutral ſalt, prepared by diſtilling equal parts of white cryſtalline arſenic, and purified nitre powdered, with a well regulated heat, until the retort was red-hot, and no more vapours of nitrious acid would riſe. In the retort a ſaline maſs remains, white, compact, and fixed; from which, after a ſolution in hot water, filteration, evaporation, and cryſtallization, may be obtained; beautiful quadrangular, priſmatic cryſtals, terminated at each end by a quadrangular pyramid; the ſides of which correſpond with thoſe of the priſm. *This is a genuine arſenical neutral ſalt.* This proceſs I have ſucceſsfully executed on a large ſcale, to ſerve certain manufactories, &c. who apply it in a commercial view.

The extreme activity of the reguline, or metallic part of *antimony*, a quantity too minute to be ſenſible on the tendereſt balance, is capable of producing the moſt violent effects, if given diſſolved in the vegetable acids, or in a ſoluble ſtate. The violent

violent effects which antimony produces in certain circumſtances have been aſcribed by Neuman, Hoffmann, and Stahl, &c. to its participating of an arſenical ſubſtance. But the chemical properties of antimony, alledged in proof of this ſuppoſition, are by no means characteriſtic of that poiſonous mineral; and its operation in the human body is extremely different.

The moſt violent antimonials are rendered inactive by means which do not leſſen the deleterious quality of arſenic. The inactive are rendered violent, by operations in which arſenic would be diſſipated; and ſome act with violence in far leſs doſes than pure arſenic itſelf.

Sulphur, which reſtrains the power of *mercury* and the *antimonial regulus*, remarkably abates the violence of *arſenic*; and it is not improbable that *balſam of ſulphur*, and *hepar ſulphur*, properly managed, would prove the beſt antidotes in counteracting and neutralizing the poiſonous effects of both theſe, and the *corroſive ſublimate of mercury*, which has alſo been accuſed of being adulterated, or otherwiſe combined with arſenic, but on no better foundation.

Mercury, or the preparations of it, although they are found ſalutary in ſundry cutaneous deffodations, and impurities of the blood and juices, vulgarly called ſcorbutic; yet they are always pernicious in the *true ſcurvy*, and dangerous in conſtitutions

conſtitutions inclining to this diſeaſe, where the humours are acrimonious and colliquated, and diffuſed to a putreſcent ſtate. In ſuch circumſtances mercurial medicines are apt to operate with violence; ſmall doſes have occaſioned high and laſting ſalivations: the removal of theſe accidents are to be attempted by clyſters, purgatives, and diaphoretics, or ſuch other means, conſiſtent with the patient's ſtrength and the particular ſymptoms, as may procure a ſpeedy revulſion from the ſalival ducts.

Boerhaave has recommended *ſal ammoniac*; and we are authorized from experience to pronounce it an uſeful medicine in ſome obſtinate intermittents. In the Eaſt Indies, the Tellicherry bark, or what is there called the *Cort. de Pala*, has been found very beneficial in removing agues of long ſtanding. The bark alſo of the mahogany-tree, which reſembles much the Peruvian bark, and is often fraudulently mixed with it, is ſaid to have been found ſerviceable in *Jamaica*, for the cure of intermittent fevers.

Before the diſcovery of the Peruvian bark, the cure of agues was generally attempted by bitters; ſuch as chamomile, centaury, gentian, orange-peel, zedory, &c. Theſe bitters, together with fixed alkaline ſalt, are ſtill in great eſteem with ſome phyſicians, who entertain prejudices againſt the

bark; all of which, it is to be hoped, will be removed.

We have already mentioned the ſucceſs of *zinc*, in the hands of Dr. Blane, and Mr. Telford, the ſurgeon of the Yarmouth, in the form of flowers, and vitriol of zinc.

I have juſt now received a pamphlet, publiſhed by a Mr. Samuel James, ſurgeon, containing obſervations on the bark of a particular ſpecies of the willow, common in England, &c. It is ſtyled by Ray, in his Synopſis, *ſalix latifolia*, broad-leaved willow, and is thus deſcribed in the botanical arrangement of Dr. Witherington.

The leaves of the *ſalix latifolia* are egg-ſhaped, downy on the under ſurface, weaved at the edge, with little teeth towards the end: the lower buds ſend forth leaves, the upper buds catkins without leaves; bark rough and grey; the wood ſmooth, ſoft, and flexible: it is converted into charcoal, for making gunpowder, and drawing pencils. The Lapplanders make a ſort of leather of the bark, which they manufacture into gloves: they give a decoction of the leaves for the heart-burn. The flowers are particularly grateful to bees, and the leaves are eaten by horſes, cows, goats and ſheep: the purple emperor butterfly, papilio iris, the highflier moth, and the copper underwing moth, feed upon it.

This tree grows frequently fifteen or twenty feet high;

high; almoſt any kind of ſoil will ſuit it, but it delights moſt in a cold, clayey, humid ſituation. The beſt mode of propagating it is by cuttings of two or three years growth, and of about three feet long, which ſhould be ſtuck half way into the ground in the latter end of autumn, or beginning of ſpring. It grows rapidly, extending to the height of eight feet in three years. In ſome countries, where there is a ſcarcity of oak, the bark of this tree is uſed for tanning of leather, and dying. The bark is eaſily procured during the ſummer months, either from the tree itſelf, or from toppings of from one to three inches diameter. When it is taken off the tree, it ſhould be placed under a ſhade where the rain cannot reach it, and the air has free acceſs. In this ſituation it ought to dry gradually. The author has found it more aſtringent, and of ſuperior efficacy to the *cortex Peruvianus*.

It is not only efficacious in the cure of *agues* and intermittent fevers, but alſo where the tone or ſtrength of the ſyſtem has been ſuddenly reduced in conſequence of large collections of pus, hæmorrhages, *fluor albus*, colliquative diarrhœas, &c. as well as in ſeveral ſcrophulous caſes; and in a ſingle inſtance, where the tone of the ſtomach was ſo entirely deſtroyed from hard drinking, that the patient could not, at any one time, eat the quantity of half an ounce of meat.

The author informs us, that Mr. E. Stone, a

clergyman of Chipping-Norton, in the County of Oxford, communicated to the Royal Society in the year 1763 ſeveral particulars relative to the uſe and importance of this bark, as a ſubſtitute for the Peruvian bark. But notwithſtanding this, it had not made its way into our druggiſts' ſhops, &c. &c.

Mode of exhibiting the ANTIFEBRILE MEDICINES *in* INTERMITTING FEVERS.

IN the cure of intermittents much benefit is derived from early recourſe being had to medical aſſiſtance. The diſeaſe, on its firſt attack, is with difficulty diſtinguiſhed from other fevers, and it gains additional ſtrength from its duration.

On the approach of the cold fit, as ſoon as a perſon is ſeized with the ſhivering or chills of an ague, adminiſter the following draught:

Take of any wine, red or white, ij ℥. to iv ℥.
Antifebrile powder, No. 1, xx grains.
Powder of gum-arabic, x or xv. grains.
Shake them well together, and let the patient drink it off without ſuffering the antifebrile powder to ſubſide, and immediately go to bed and keep himſelf warm.

Take

Take of red or white wine, 4 pints.
Antifebrile powder, No. 1, iv ℈.
Aromatic tincture, 4 ℥.
Heat one half of the wine ſcalding hot, and diſſolve the powders in it, ſhaking them well together in a bottle capable of holding the remainder of the wine, which is to be added warm to the ſolution.

Give an ounce of this ſolution warm every one or two hours, according to the urgency of the ſymptoms.

If the patient vomits, aſſiſt it by giving chamomile tea, with a table-ſpoonful of the ſolution in the firſt cup, taken after each return of the puke, until the ſtomach is cleanſed. Cover the patient up, and encourage a diaphoreſis, by continuing the doſes of the *antifebrile ſolution* at the ſame intervals as before, or as occaſion may require.

If coſtive, or the antifebrile medicines do not induce a ſtool, give the following clyſter, taking care that the patient does not get cold either when adminiſtered or when at ſtool.

Take of tinctura ſacra, i ℥.
Antifebrile ſolution, ij ℥.
Olive oil, i ℥.
Common decoction, half a pint, mix and inject.

Should the antifebrile medicines promote a

ſweat in the firſt inſtance, encourage it by a liberal uſe of muſtard-whey, in ſmall, but frequent draughts.

In which ever way theſe medicines operate, the general effects, if given in the cold fit, will be an abatement in the rigors, ſpaſm, and attendant ſymptoms, and probably remove the fit. In the hot fit, they give ſenſible and immediate relief to the head, abate the violence, and leſſen the duration of the fit; take off the burning heat of the fever, promote ſweat, with an agreeable ſoftneſs of the ſkin, and much more copious than when taking the bark, or any other medicine.

When the firſt attack of an ague is mild, ſcarce any medicine is requiſite during the hot fit; but when protracted to any length, or attended with alarming ſymptoms, the foregoing treatment will be ſucceſsfully attended with the happieſt effects.

And in moſt caſes the febrile virus totally expelled, uſually without any danger of a relapſe, or generating into any other diſeaſe; and that without any previous preparation of the body, which the rapid advance of thoſe deleterious diſeaſes in hot climates ſcarcely admits of.

Much danger is to be apprehended when agues ſeize upon the patient under the form of a continual or remitting fever, attended with violent ſymptoms, eſpecially a delirium; from whence that ſtate is generally denominated the frenzy fever. This

fever,

fever, unleſs brought to a ſpeedy remiſſion, is attended with conſiderable danger; the uſual remedies are bliſters and antimonials.

If large quantities of blood be repeatedly taken, by miſtaking the diſeaſe, or not attending to the method of cure laid down under the head *bilious, putrid, and malignant fevers*, its obſtinacy and fatality are greatly increaſed. Profuſe bleedings are more particularly hurtful, when ſymptoms indicate a ſpeedy remiſſion of the fever, or its termination in a regular ague, which commonly is prevalent at the time.

Theſe medicines, as much the product of Nature as Chemiſtry, are equally uniform in their operation: if the ſtomach or bowels ſtand in need of cleanſing, the ſordid fomes of the diſeaſe acted on by the antiacrid powers of the medicine will operate by vomit, or ſtool, or both, according to the preſence of the morbid acrimony in the ſtomach, or inteſtines; if abſorbed into the ſyſtem, by perſpiration or urine, or both.

Thoſe who prefer previous evacuation, and are averſe to ſimplifying the method of cure as here laid down, may be aſſured that ſuch procedure, though it may retard, will not otherwiſe leſſen the efficacy of the antifebrile medicines; and ſhould an attachment to a well regulated practice induce them to give the bark alſo, whenever a remiſſion is ſucceeded by no bad ſymptom that forbids it, they

may with ſafety and ſucceſs throw in the bark, juſt as if our medicines had not been given.

If we could preſume to preſs our mode of practice on gentlemen of this way of thinking, we would, for our mutual ſatisfaction, recommend a trial of them alone, merely to aſcertain the qualities of the medicines propoſed; which though they may not be injured by the junction of the bark, and other medicines ſalutary in the cure of intermittents, yet their value cannot be ſufficiently aſcertained, but by adminiſtering them alone.

It has been judiciouſly remarked by Dr. Lind, when the ague was ſtopped by the bark, after the firſt or ſecond fit, as in his own caſe, and that of two hundred of his patients, neither a jaundice nor a dropſy enſued. When the bark could not be adminiſtered on account of the imperfect remiſſions of the fever, or when the patient had neglected to take it, either a dropſy or a jaundice was the certain conſequence; and the degree of violence with which it attacked was in proportion to the number of the preceding fits, or to the continuance of the hot fit. By every paroxyſm the dropſical ſwellings were viſibly increaſed, and the colour of the ſkin rendered of a deeper yellow.

When the fever continued a few days without remiſſion, the belly and legs generally ſwelled; a violent head-ach and vertigo, alſo, generally diſtreſſed the patient; ſo that ſome, even after the fever

ſever had left them, were not able to walk acroſs their chamber for a fortnight or three weeks.

All this melancholy catalogue of ſymptoms may be obviated by attentively purſuing the mode of practice already deſcribed, and proceeding as follows:—

An ague cannot be ſtopped too ſoon; the more ſevere it is, the more urgent the neceſſity of applying the remedy; as the conſtitution is always found to ſuffer leaſt, where the ague is eaſily removed.

A dropſy, jaundice, ague cake, and diſeaſes of the liver, will commonly be obviated by this method: but as improper treatment, or the neglect of the patient, or thoſe about him, together with the malignancy of the diſeaſe, may induce, or cauſe a degeneracy of the fever into any of thoſe concomitant maladies that frequently aſſociate with the ague in hot climates, oftener than in more temperate regions, we ſhall enumerate their ſymptoms and method of cure.

DROPSY.

BEFORE this diſeaſe is perfectly formed, the patient is generally ſaid to labour under a cachexia; but when it increaſes, ſo as to cauſe a general accumulation of lymph in the cellular ſyſtem, it is called lucophlegmatia, or anaſarca. When there is a collection of watery fluids in the abdomen, it is eſteemed an aſcites; when in the ſcrotum, hydrocele; when in the breaſt, hydrops-pectoris, or hydrothorax.

The dropſy is a preternatural collection of water or ſerum in ſome particular parts of the body; attended for the moſt part with ſwelling, thirſt, difficulty of breathing, and a diſcharge of very little urine.

In moſt dropſical caſes the legs ſwell and pit towards night, the appetite decays, the face either becomes bloated, or grows thin, emaciated, and pale; and a ſlow fever and thirſt attend. If a dropſy happens after large hæmorrhages, long continued fevers, or an abuſe of the bark in intermittents, purge ſparingly: much dependence is here to be laid on bitters, chalybeates, and deobſtruents. It is well known, that obſtructions of the

the different thoracic and abdominal viſcera, eſpecially of the liver, are the general cauſe of a dropſy.

Take of the antifebrile powder, No. 1, v grains.
Conſerve of roſes, i ℈.
Currant-jelly ſufficient to make a bolus.

Take of cream of tartar, ij ℈.
Cows' milk, one pint,
Water, two ounces.

When the milk comes to boil, add the cream of tartar, previouſly diſſolved in the two ounces of water boiling hot to the milk. If the water ſhould not have diſſolved the whole of the cream of tartar, add it altogether to the milk as it is, in which it will be totally diſſolved; ſeparate the whey from the curd.

Give the bolus once, twice, or thrice a day, according to the urgency of the ſymptoms, and and let the patient take, in the courſe of the day, from two to three pints of the cream of tartar whey.

In ſituations where milk cannot be obtained, diſſolve ſix drachms, or an ounce of cream of tartar in three pints of water, and make it palatable with a little wine, and a ſufficient quantity of ſugar, or ſyrup of orange-peel; or,

Take

Take of cream of tartar, i ℥ ſs.
Pure ſoft water, xxiv ℥.
Caſſia lignæ, ij ℥.
Bruiſed muſtard-ſeed, iv ℥.
Syrup of ginger, a ſufficient quantity to make the ſolution palatable. Diſſolve the cream of tartar in the water over the fire, and infuſe the caſſia lignæ and muſtard-ſeed for a few hours in the ſolution; when ſufficiently impregnated, ſtrain off the clear fluid, and ſweeten to the palate with ſyrup of ginger.

Take of exiccated ſquills, iij grains.
Of antifebrile powder, iij grains.
Mucilage of gum-arabic, a quantity to make a bolus.
Adminiſter this bolus night and morning.

The quantity of ſquills in the bolus may be occaſionally increaſed, and, if neceſſary, be reduced or omitted now and then. The ſolution of tartar may be taken from a pint to a pint and an half, or a quart a day; particularly where the ſquills are omitted in the bolus; when even the whole three pints may be taken in the courſe of twenty-four hours; obſerving never to give more than four ounces at a time, and from three to ſix hours between each doſe.

The antifebrile bolus and ſolution of tartar generally cures in two or three days, but ſometimes not

not under two or three weeks, by urine and ſtool: the ſquill bolus generally in a ſhorter time; moſtly by vomit, and ſometimes by ſtool and urine alſo.

In all dropſies the diet ſhould be dry and ſolid; liquids ſhould be ſparingly uſed, and theſe ſhould conſiſt of ſound wines, or medicated beers, in order to ſtrengthen the ſolids, and to promote the renal diſcharges.

JAUNDICE.

The jaundice is an univerſal yellowneſs tinging the ſkin, chiefly obſervable in the whites of the eyes; owing to the bile mixing itſelf in too great a proportion with the blood: it may be occaſioned by obſtructions, viſcid bile, ſmall biliari calculi, or ſpaſms in the biliary ducts, inflammation, or ſchirrus of the liver.

Nature has made a great apparatus for the formation of the bile; hence its great uſe in the animal œconomy, and the diſeaſes conſequent on its viſcidity, which are apparent in the lives of the ſedentary, by coſtiveneſs, &c. as the contrary happens to free livers; where the ſalts being exalted, diarrhœas and fevers frequently attend.

The ſymptoms of a jaundice are, inactivity, laſſitude, anxiety, ſickneſs, oppreſſion at the breaſt, difficult reſpiration, pain about the pit of the ſtomach,

ſtomach, dry ſkin, with an itching, coſtiveneſs, hard, white, or greyiſh ſtools, yellow and high-coloured urine, with a bitter taſte in the mouth. A jaundice, ariſing from an obſtruction in the gall-bladder, is not ſo bad as that from a ſchirrus-liver.

The exiſtence of the biliari calculi in the gall-bladder, may be ſuſpected from a fixed pain in the region of the liver, which is ſometimes, though not always, ſucceeded by the jaundice.

The diet ſhould be attenuating.

Take antifebrile powder, No. 1, one packet.
Gum ammoniacum, ij ℈.
Oil of juniper, xx drops.
Soft extract of licorice, iij ʒ.
Powdered bark of the root of mezereon, i ℈.
Make this into one maſs, and divide it into twelve parts, of each make five pills; two to be taken in the morning, and three at night.

Take antifebrile wine, two pints, (ſee page .)
Madder root, } of each j ʒ.
Turmeric root, }
Of the bark of mezereon root, } of each j ʒ.
Of the bark of ſaſſafras, }
Compound ſpirit of lavender, ij ʒ.
Digeſt for two or three days, and give from two drachms to half an ounce of this deobſtruent wine twice a day (when the above deobſtruent pills are not taken) in any agreeable vehicle.

If

If the ſymptoms indicate the exiſtence of a ſtone in the gall ducts—in this caſe opium and a warm bath ſhould be reſorted to. Gentle purgatives, as rhubarb and calomel are uſeful, by increaſing the motions of the inteſtines, and ſoliciting a flow of the bile, or the free uſe of ſal diureticus. If attended with a fever, the antifebrile powder, No. 2, and rhubarb ſhould be the purgatives employed. If the diſeaſe proceeds from a ſluggiſh and viſcid bile, vomits of the antifebrile powder, No. 2, joined to ipecacuanha, ſhould be added; and bleeding, when the ſtrength of the patient will bear it.

Take of antifebrile powder, No. 2, x grains.
Rhubarb, xx grains.
Mucilage of gum-arabic ſufficient to make a bolus; adding extract of chamomile, j ℈.

Take of antifebrile powder, No. 2, xv grains.
Ipecacuanha, x grains.
Extract of chamomile, j ℈.
Mucilage of gum-arabic, a ſufficient quantity to make them into a bolus.

The firſt is the purgative, and the ſecond the vomitive bolus, which we recommend when a fever attends.

INFLAMMATION OF THE LIVER.

THE hepatitis, or inflammation of the liver, is a very common diſeaſe in hot climates. It may be known by a pungent pain in the region of that viſcus, ſhooting upwards to the throat and clavicle, with a difficulty of breathing. The patient ſpontaneouſly applies his hand upon the right ſide, the ſeat of the liver, as it were ſeeking for relief: it is generally accompanied with a high fever, loſs of ſtrength, a quick pulſe, and tenſion of the hypochondrium; a yellow ſkin, ſaffron-coloured urine, and coſtiveneſs.

The livers of thoſe who died in the Eaſt Indies were found in a putrid ſtate, reſembling a honeycomb. On the firſt attack the patient ſhould loſe blood, and the part ſhould be fomented with a proper diſaitient, or a bliſter applied on it. When the fever is ſomewhat abated by bleeding, and a gentle purge or clyſter has been adminiſtered, recourſe ſhould be had to mercury, rubbed on or near the part, with the uſe of calomel, or other mercurials, to raiſe a gentle ſalivation; to be continued for fifteen or twenty days.

A ſalivation generally cured the diſeaſe of the liver, if the ſpitting was brought on before the matter

matter was formed. In ſome the mercury produced looſeneſs, which alſo cured the liver: in inflammations of the liver, when it adhered to the peritonæum, which was generally the caſe, and a tumor appeared externally, it was ſeveral times opened with ſucceſs.

On the very firſt appearance of an inflammation of the liver, and as ſoon as the firſt blood is drawn, adminiſter the antifebrile medicines as follows, which are highly anti-inflammatory:

Take of antifebrile powder, one packet of No. 2.
Hot wine, one pint, or xvj ℥.
Powdered bark of the mezereon root, i ℈.
Syrup of lemon juice ſufficient to make the mixture palatable.

Let the patient take an ounce of this mixture every two hours, till the medicine operates upwards or downwards.

Take of powdered bark of the mezereon root, i ℈ ſs.
Antifebrile powder, two packets of No. 2.
Cryſtals of acetated quickſilver, i ℥.
Soft extract of logwood, a quantity ſufficient to make them into a maſs, with ij ℥. of powdered gum-arabic; divide it into ſixteen parts, and make each part into five pills.

Take of the antifebrile powder, No. 2, two packets.
Strong ointment of quickſilver, iiij ʒ.
Olive oil, a quantity ſufficient to grind the antifebrile powder into an ointment of the conſiſtence of the mercurial ointment, to which it muſt be added, and both blended together for uſe.

When the firſt paſſages have been cleanſed by the antifebrile mixture, let the patient enter upon a courſe of the antifebrile mercurial pills and ointment; taking two of the pills in the morning, and three at night; and the ointment rubbed on or near the ſeat of inflammation, that the mouth as ſpeedily as poſſible may be affected, and the ſalivation kept up moderately, until the inflammation is removed, and the patient relieved by an abatement, if not a total ceſſation of the moſt urgent ſymptoms.

With reſpect to bleeding, the pulſe is the beſt barometer, attending at the ſame time to the ſtrength of the patient; repetitions are better than taking too much at once. When the evacuation is by the ſalival glands, we are not to expect to increaſe it by enlarging the doſe, but by ſubtracting the antifebrile medicine from the mercury; and if the ſymptoms abate, it would be imprudent to make any alteration in the medicine, or manner of adminiſtering it; as it may be productive of very happy effects without any ſenſible

ſible evacuation, other than by urine and perſpiration.

For which reaſon the ſalivation ſhould not be encouraged to any conſiderable height, but reſtrained within due bounds, by interpoſing a cooling purge, diſcontinuing the mercurials, or even by applying a bliſter.

The ſame reaſoning is as applicable to the firſt indications of cure; that in reducing the febrile impetus within due bounds, the pulſe muſt not be ſuffered to flag or ſink too low; no more than we would extinguiſh the inflammation, or expel the morbid cauſe, by too great evacuation, but keep up the ſtrength of the patient by proper cordial medicines (ſuch as our own), and a due attention to a reſtorative diet, fit for a debilitated conſtitution.

If the *mezereon* bark ſhould excite the antifebrile pills to vomit the patient, which is not improbable in ſome habits, inſtead of uniting it with them, give it in a decoction, two drachms to a quart of water; of which make four doſes, diſſolvng in each half a drachm of extract of licorice, and adding one drachm of any aromatic, or ſtomach tincture to each doſe when adminiſtered, to reconcile it to the ſtomach. The mezereon is here added on the authority of Dr. Donald Monro, of London, and Dr. Home, of Edinburgh, who have found it the

moſt powerful deobſtruent in reſolving ſchirrus tumors, and removing glandular obſtructions.

For removing obſtructions, and reſolving an induration of the ſpleen or other viſcera, commonly called an *ague-cake*, we may rely on a decoction of the bark of mezereon and the compound ointment of quickſilver, preſcribed for the inflamed liver, managed ſo as not to affect the mouth, as this complaint does not need a diſcharge from the ſalival glands, uſually yielding to the mezereon and other notable deobſtruents, &c.

If *hectic* ſymptoms attend, ſmall repeated bleedings will be proper in the beginning, regulated by the ſtrength of the patient. The diet ſhould conſiſt of mild, light, nouriſhing food, chocolate, a milk diet, eſpecially butter-milk and goat's-whey, when they can be procured. Light, cold, infuſions of the bark, evening and noon, tend to remove the fever and ſtrengthen the habit. If the veſſels are not tender, and no preceding hæmorrhage contra indicates, a vomit of ipecacuanha twice or thrice a week, with a moderate doſe of the antiſebrile powder, No. 1, at night.

If *hæmorrhages* attend this diſeaſe, be cautious how you order attenuants, aloetics, volatiles, and chalybeates; the acid demulcent methods will, in this caſe, be the moſt proper. The diet ſhould be cooling and balſamic; barley-water, rice-gruel,

for drink, milk and water, butter-milk, ſago, jellies, tincture of roſes, and claret wine, may be ſparingly allowed. No diſorder requires greater care to avoid all ſtrong heating acrid things. Bleeding is neceſſary, if the pulſe will admit it.

If the *black vomit*, or *black ſtools* ſupervene, a diſeaſe that often follows other hæmorrhages, and that ſcorbutics are moſt ſubject to, the anti-hæmorrhagic medicines, which are uſed in other hæmorrhages, ſeem to be indicated; as emulſions of nitre, dragon's-blood, gum kino, allum-whey, &c. which may be all ſuperſeded by the *vitriolic acid*. Gentle laxatives by the mouth and anus, as caſtor-oil, rhubarb, and calomel, are highly neceſſary; emetics are eſteemed hurtful.

This is an acute diſeaſe of quick termination, without remarkably raiſing the pulſe: attended with ſevere gripes and great debility, frequent fainting, and a conſiderable loſs of blood; which, from its black colour when diſcharged, has been miſtaken for putrid bile, by Hippocrates, Boerhaave, Van Swieten, and Morgogni, all of whom thought atra bilis was the cauſe of this diſeaſe.

It proceeds, when ſymptomatic, from obſtruction of the liver, ſpleen, ſtomach, and other viſcera; and when it appears at the latter end of a diſeaſe, is juſtly reckoned very fatal; but it is ſometimes idiopathic, and even then has been found very dangerous.

It is diſtinguiſhed by the name of *malaene*, by Dr. Home (and others), who found bleeding uſeful in the idiopathic malaene; and alſo, that the vitriolic acid was a ſpecific in the cure. It ſeemed reaſonable to clear the inteſtinal canal, as all fœtid matter and preſſure of the fæces, which might prolong the hæmorrhage, is thereby removed; for which purpoſe he uſed the infuſion of tamarinds, as a gentle antiſeptic laxative. The vitriolic acid appeared to him the beſt antihæmorrhagic, being antiſeptic, and powerfully ſedative, and alſo a ſtrong aſtringent: theſe effects entitled it to a trial, and its great ſucceſs warranted the experiment, and juſtified his reaſoning. To prevent its exciting gripes, of which he was afraid, and to enable him to give it in a greater quantity, it was mixed with mucilage of gum-arabic, which effectually covered the acid and irritation.

He ſhunned opiates, as they would have ſhut up the matter that nature was carrying off by diarrhœa, and would in this way have increaſed the putreſcency. He gave of the acid elixir of vitriol, twenty drops in four ounces of water, for a doſe, three times a day: at other times one of theſe julaps:

Take of weak ſpirit of vitriol, ij ℥.
Water, ij ℥.
Syrup of dry roſes, ij ℥.
Or conſerve of roſes, ℥ſs.

Take

Take mucilage of gum-arabic and water, of each iv ℥.
Weak ſpirit of vitriol, c drops.
Syrup of marſhmallows, i ℥.

Of the firſt julap a ſmall ſpoonful every four hours, of the laſt an ounce every three hours, may be given. He found that he could give double the quantity of acid with the gum-arabic. In phthiſis pulmonalis, he was not ſo ſucceſsful in his experiments with the vitriolic acid, where there ſeemed good reaſon to expect it; from its aſtringency and ſtrong antiſeptic power, it may ſometimes correct the laxity of the ſolids, and the purulent diſſolution of the fluids; but was found ſtrongly to tend to promote purging, even though joined to the mucilage of gum-arabic, accompanied with opiates, which has here certainly a bad effect.

If this treatment of the black vomit does not ſpeedily ſucceed, in hot countries there is no room for delay; and it will always be the ſafeſt way when that is the caſe, to proceed as directed under Dyſentery and Cholera Morbus: the medicines there ordered will be equally fit in the black vomit, but muſt not be given in conjuction with the vitriolic, or any other mineral acid, nor with alkalies.

Dr. Blane deems the *black vomit* the moſt dangerous ſymptoms of the *yellow fever*; and obſerves,

ſerves, that, on examining the dark flakes, reſembling grounds of coffee, it ſeemed to him, blood which had oozed from the ſurface of the ſtomach, a little altered; and that at the ſame time the ſtools grew black, and the urine frequently of a very dark colour.

Some further Particulars of the BILE *and the Application and Effects of* ACIDS *in* FEVERS, *equally applicable to the Cure of the* SCURVY, &c.

*WHEN we conſider the common theory of digeſtion, the nature of our food, the alterations it undergoes in the ſtomach, and the phenomena it occaſions there, theſe are circumſtances ſo agreeable to the doctrine of fermentation, that it ſeems now to be generally applied to the firſt changes of our aliment.

But the experiments that Dr. Ruſh made upon the contents of his own, and of his friend's ſtomach, tend to perſuade us that this fermentation always proceeds to the acetous ſtage, and that there is a conſtant generation of acid from digeſtion.

As ſoon as the acid liquor paſſes out by the pylorus, it muſt meet with the bile in the duodenum, the known effect of which is for the acid to coagulate the bile. After this operation, being neither fluid itſelf, nor miſcible with the fluids of

* Dr. Maclurg on the bile,

the

the inteſtines, it cannot be abſorbed, but muſt paſs off with the fæces.

But in caſes of great redundancy of bile, the proportion between it and the acid will no longer be preſerved; and conſequently there we may ſee the abſorption of bile, unleſs it is carried off by an increaſed inteſtinal diſcharge.

Nature, in the coagulation of the lymph of the bile, ſeparates a ſerum from it, which is found to be its moſt antiſeptic part; and by this decompoſition that takes place in the inteſtines, the putreſcent coagulable matter is left to the alvine ſecretion, while the other is taken up by the abſorbents, and applied perhaps for uſeful purpoſes in the animal œconomy.

It is no doubt agreeable to the wiſdom of Nature, that ſhe ſhould, by the ſame contrivance, ſeparate from the maſs a matter which was growing pernicious, and prepare one that ſhould be uſeful; and accordingly ſhe has taken the greateſt pains to make the quantity of acid in the ſtomach, at this period, bear a proportion to the redundance of the bile, that ſo the operation might be completed.

She covers the earth with a quantity of acid or aceſcent fruits, as tempting to the eye as they are delicious to the palate. She diminiſhes our appetite for hunger when ſhe encreaſes that of thirſt; and thus, not contented with alluring us to pleaſure,

ſure, ſhe ſeems willing to determine our choice of food by neceſſity.

At the ſame time ſhe diffuſes over us an indolence and inactivity that, while they make a more ſubſtantial aliment unneceſſary, deprive us of an inclination to ſeek it. Without the artificial diſtinctions of ſociety, neither bread nor meat could be obtained, except by the labour of the individual; but the fruits, in ſuch climates and ſeaſons, preſent themſelves ſpontaneouſly.

And what we collect from tracing the plan of nature is farther confirmed by experience. A moſt accurate obſerver* aſſures us, that the people who kept the vineyards in Minorca, and ſubſiſted chiefly on grapes, eſcaped the diſorders of the hot ſeaſon. Sir John Pringle has made a ſimilar obſervation.

It has been frequently remarked, as characteriſtic of Engliſh men, that they are prone to exceſſes of every kind; virtue, vice, frugality, profuſion, and every peculiarity of character, are ſaid to grow to a more extraordinary height in this than in any other clime.

But their free ſpirit rejects the appearance of conſtraint, even in the moſt ordinary matters. In this favourable climate, and in conſtitutions which retain their native vigour, ſuch exceſſes are fol-

* Dr. Cleghorn.

lowed

lowed by a puniſhment ſo tardy that it is frequently confounded among the natural effects of old age.

Our colonies, in hot climates, retain the full and free manner of living of their moſt robuſt anceſtors. They imitate, in this reſpect, the leſs poliſhed, but more hoſpitable ſtate of their parent country; before a neceſſary œconomy and attention to more elegant pleaſures, and the care of a debilitated body had introduced a greater moderation.

They ſeem as though they were yet new in their ſettlements, and not to have diſcovered the modes of living which are beſt adapted to their ſituation. In general theſe are regulated by faſhion, and are not therefore always ſtrictly rational.

Yet I believe, in every country which has been long inhabited, they will be found to bear a certain relation to the nature of the climate. Its temperature affects moſt remarkably the nervous ſyſtem, and alters therefore the ſtate of our appetites, which is always relative to the conditions of this ſyſtem.

And practices, which are ſuggeſted firſt by inſtinct, are continued from an experience of their utility. The poſterity of the Goths, who ſettled in Italy, obſerve, through habit and inclination, a temperance which the northern deſcendants of the

the ſame people feel the greateſt pleaſure in tranſgreſſing.

And univerſally in the civilized countries, which are ſubject to great heat, the inhabitants are more ſober and temperate. The bounds of moderation grow more contracted, as exceſs becomes eaſier and more pernicious; yet an apology has been offered for the liberal uſe of wine in the Indies, on account of its ſtrong antiſeptic power.

But it ſhould be remembered that the animal machine will form its own fluids; and that generally we are not capable of altering theſe immediately, but only through the intervention of the powers which form and ſeparate them, while we change the ſtate of the motions in the œconomy.

The firſt and principal effect of moſt of our antiſeptics, is certainly exerted on the living ſolid; and perhaps when one is to be expoſed for a ſhort time to the influence of putrid miaſmata, the ſupporting in the body an artificial temporary vigour, by repeated applications to the bottle, may prevent their operation.

But it is undoubtedly true that a continuance of the practice muſt co-operate with the heat, in bringing on a premature decay of vigour in the ſyſtem. The ſame objection lies againſt a full and ſtimulating diet; for all great irritations muſt be pernicious to an œconomy which is wearing out

too

too rapidly, and when the action is already exceſſive from the ſtimulus of exceſſive heat.

The change induced on the nervous ſyſtem, productive of weakneſs and irritability, ſeems to be the fundamental fault of the conſtitution in theſe climates; from which, as a common ſource, are probably derived the quicker circulation; the more rapid progreſs of the fluids in their ſeptic degeneracy; the redundancy of bile; the diſpoſition to violent ſpaſmodic diſorders, and to fever.

The moſt natural and obvious means of preventing theſe effects of the heat is the application of cold to the ſurfaces of the body. Bathing, that act of equal voluptuouſneſs and religion in the eaſtern countries, and all the methods of cooling the air by evaporation, which enter into their ſyſtem of luxury, the inhabitants was led to by nature, and continue from an experience of their ſalutary pleaſure.

To be in poſſeſſion of ice and ſnow during hot weather, requires a little more management and contrivance; but in ſome of the ſouthern parts of Europe the uſe of theſe refreſhments extends through almoſt every rank of people; and we are aſſured, by their phyſicians, that it is not only a very healthful luxury, but even a remedy of conſiderable importance in the diſorders of their hot ſeaſon.

It is ſurpriſing that the inhabitants of our American colonies did not endeavour to procure this enjoyment in their warm ſummers. They would find an ice in the afternoon an admirable ſubſtitute for thoſe warmer liquors, with which they relax ſtill more their enfeebled ſtomachs; and its expence would certainly be overpaid by its pleaſure and utility.

The acids approach the neareſt to actual cold in their effects on the œconomy; they produce a ſenſe of coldneſs, relieve thirſt, oppoſe putreſcency, repreſs the inordinate diſpoſition to motion in the ſyſtem, and give a degree of aſtriction, with a gentle irritation to the parts more immediately ſubjected to their action, the alimentary canal, and its appendages. They have been obſerved to relieve that languor and faintneſs which are occaſioned by exceſſive heat, when no benefit reſulted from the common ſtimulating cordials.

Their peculiar operation on the bile, which ſeems to bear the ſtrongeſt marks of Nature's providential care of the œconomy, has been already conſidered; and from that view alone, we are convinced of the neceſſity of uſing them in greater quantity whenever the body is expoſed to the continued influence of great heat.

They are then demanded by the appetite, and cordially received by the ſtomach; for, in hot weather,

ther, and in a fever, we bear very well a quantity of acid, that would be apt, in other circumſtances, to diſorder the firſt paſſages.

Theſe precautions againſt heat appear to oppoſe its effects directly; while the ſpirituous liquors, and thoſe warm ſpices of which the Weſt Indians are ſo fond, although they remove for a time the languor of the climate, are hurtful, by adding to that irritation which the heat has carried to exceſs.

It is an unnatural purpoſe they anſwer, when, by rouſing a feeble ſtomach, they enable a man to eat as much in Jamaica as he would in England.

If we were careful to preſerve the ſtrength of the ſyſtem, by a way of life adapted to the climate, we ſhould feel no occaſion for their temporary uſe; and they ought certainly to be reckoned amongſt the *præſidia valetudinis*, whoſe purpoſe is always temporary, ſince it muſt never be ſuppoſed that a man is to be ill his whole life.

They can be of no advantage while our ſyſtem retains its natural vigour, and become neceſſary by habit, becauſe they deſtroy that vigour; for the ſame reaſon they render the ſtomach leſs capable of bearing the action of cold and the acids, and may deprive us of theſe remedies, which, by lowering the two great excitement that ariſes from the heat, are its proper and natural antagoniſts.

* One of the general and moſt common effects

* Dr. Farr on acids.

of

of ſtimulating ſubſtances upon the body is, the exerting a greater impulſe in the veſſels of which it is compoſed than is uſual or natural; this the action of acids evidently produces. When applied to ſeveral of our ſenſible powers we perceive them in a very evident manner.

When we taſte them we feel at the ſame time a peculiar glow that does not terminate in the place to which they are applied; it extends through the whole ſyſtem, and convinces us of their univerſal efficacy. The ſame effect is often perceived, though perhaps attended with much more important conſequences, when applied to the olfactory organs; they are uſed in this manner with a medicinal intention, and are often accompanied with apparent ſucceſs in reſtoring from deliquiums to ſenſe and vigour. Beſides this, acids may be employed as cauſtics, and have often been uſed as ſuch.

When acids are introduced into the mouth, not merely to pleaſe the palate, or affect the mere organ of ſenſation that is placed there, but to excite an irritation of a much higher kind, they never fail to produce the end propoſed. The cuticle that inveſts theſe parts is infinitely more ſenſible than that of the outward ſkin; hence we ſee a moſt copious flow of ſaliva excited upon ſuch an application; glandular obſtructions are eaſily relieved, and the due tone of the veſſels regularly promoted.

How

How well fitted then are they, as a medicine, to reſolve tumors that ſo often happen in theſe places, and to reſtore not only a due ſecretion of the ſaliva, but to diſſolve that which is too viſcid, and render it pure and uncorrupt, and capable of diſcharging its deſtined office.

Every accident that may happen to the mouth and fauces, and parts that are appendages to it, down even as low as the ſtomach, as they diſcharge a mucus or ſaliva, muſt depend for a cure upon the purity of this ſecretion; for while it remains corrupt and diſeaſed, no advantage can be expected from the application of any medicines.

Acids then act peculiarly upon theſe parts; they are the chief ſubjects of the organ of taſte, and they tend to correct every thing that ſhall hinder its perfection: does not this open a wide field to the practitioner in medicine? There are ſo many diſorders which depend upon a vitiated ſaliva; ſo many that might be prevented by proper attention to its uſe; and ſo many which, perhaps, require no other cure than what may be applied to rectify a diſeaſe, which, if ſuffered to lie dormant, like other occurrences of as trifling a nature, often terminate in the worſt of conſequences.

It is very neceſſary then that theſe organs be kept properly ſtimulated, and the acids may appear a very good remedy for this purpoſe. There is one caution, however, which ſhould be attended

to with regard to their uſe; it is the danger they often threaten to the teeth. Theſe bony ſubſtances, apparently ſo firm, and ſo well adapted to the uſes of manducation are defended by a covering that may be hurt by theſe medicines; the enamel is certainly of the nature of an earth. Acids very frequently join with ſuch bodies, diſſolve them, and convert them into a ſaline ſubſtance.

From whence it happens that the tooth-ach is often introduced by the uſe of acids, where they are uſed in great plenty, and without being properly diluted.

Let us purſue the action of acids to the ſtomach. Here we ſee their influence excited in its full extent, and producing effects wonderful in themſelves, and very extraordinary on the animal œconomy. Here we ſee a very active body exerting its power over a very ſenſible part of the animal conſtitution, and to whoſe affection we are conſtantly attentive.

The ſenſation of hunger indicates to us more than any other the imbecility of our nature, and is the ſtrongeſt teſtimony to convince us that we can no longer ſubſiſt than while we enjoy it. It has been imagined by ſome learned and very ingenious perſons of the preſent as well as the paſt ages, that the degeneracy of our food into an acid was the cauſe of this affection.

We ſhall not endeavour to build any theory upon

upon ſuch an opinion; it is ſufficient to ſhew that acid bodies create a very ſtrong irritation upon this organ, ſtimulate to proper digeſtion, and are the cauſe of many affections which are difficult to be accounted for.

The ſtomach may be conſidered as an organ of the moſt conſequence of any in the ſyſtem; it is therefore endued with the higheſt ſenſibility, and is capable of refuſing every thing that is obnoxious to it, and admitting only what is proper and beneficial. The power which it exerts, however, for this purpoſe is not confined to itſelf, a weak and tender membrane; it gives warning of every approach of danger to the whole ſyſtem, and excites an univerſal action to expel it.

Experience daily convinces us of this; and we find ſome ſtomachs ſo exceedingly delicate in this reſpect, that the ſmalleſt quantity of acid will affect them, and produce a very powerful diaphoreſis; ſo great a ſympathy reigns between the ſtomach and the reſt of the body, particularly the ſkin.

They excite by this power an appetite to food, which have been loſt and depraved; they ſtimulate to the digeſtion of the aliments after they are properly prepared; and greatly ſtrengthen the general tone of this organ, ſo as to fit it for future uſefulneſs: beſides which, they occaſion a great flow of its natural mucus, by which the food may more properly be diſſolved, inveterate obſtructions re-

moved and diſſipated, and the latent cauſes of many powerful diſeaſes eradicated and deſtroyed.

Acids, when brought as far as the inteſtines, have very little power by ſimple irritation: they there meet with a very conſiderable corrector in the bile, a ſubſtance which we already examined, that prevents their efficacy in this reſpect, except when very redundant and copious, and then they excite great pain, and ſometimes prove purgative; at other times the contrary effect may be produced, and great coſtiveneſs procured.

This is the caſe in the *colica pictonum*, which often ſeems to depend on an acid compoſed by the powers of fermentation, and a deficiency of the bile to correct it; we have never been able, however, to introduce a medicine *, by theſe means, that ſhall anſwer the intended effect. The only means by which we can attempt any thing for this purpoſe is, by the anus, in the form of a clyſter. In this method, indeed, acids are ſaid to have a powerful effect; and, adminiſtered in large quantities, to prove a ſmart purgative; but they introduce ſo diſagreeable a teneſmus, that it prohibits their common uſe †. They might, however, I ſhould think, be employed with great ſucceſs in paralytic affections of the bowels; a caſe which

* See the dry belly-ach, and method of cure, page 66.

† Acids in this diſeaſe are oftener forbid than recommended.

frequently

frequently occurs, and is cured with great difficulty.

The blood, laden with various kinds of matter, may be conſidered as a vehicle which carries every particular that is of uſe in the ſyſtem to its deſtined place; for this reaſon it is we ſee ſo great a variety produced from one, which ſeems to contain the conſtituent parts of neither. The law inſtituted for this purpoſe is very uncertain, and is a point of phyſiology that has never been ſettled; we ſee it take place, however, with many medicines. Acids act very peculiarly in this manner: they are no ſooner taken into the body than they often ſtimulate the kidneys, and occaſion a very great flow of urine. Several other ſecretions are likewiſe influenced by them; and their uſe in affecting the bronchial glands may be found to be a conſiderable benefit.

In ſprains, &c. they give a tone to the veſſels which are too much relaxed; in bruiſes, they tend to repel ſtagnate and corrupted blood, enable it to be circulated through the ſyſtem, and carried off by ſome ſecretion; and in tumors, which require a reſolution, they may act powerfully in expelling the matter of them, to where there is leaſt reſiſtance.

We have already intimated ſufficiently concerning their power of checking putrefaction; and we need only attend here to the opportunity they

have of producing this effect. The ſtomach ſeems to be the place where they act principally in this reſpect; there it is that the ſordid fomes is firſt generated, and from thence it is that the whole circulation continually receives an acceſs of new matter.

We can hardly imagine that the general fluid can be acted on any otherwiſe than by this means; and there is hardly ever a fever produced that does not reign more in this organ than in any other part. There is one circumſtance, however, of putrefaction, even after the whole maſs is diſſolved, which requires the acceſſion of acids to every part: this is the turgeſcency, or rarefaction, which takes place in theſe, and in *ſcorbutic* caſes, eſpecially when the latter are in an advanced ſtate.

Here it is not ſufficient that a good and wholeſome chyle ſhould be provided, the prevailing putreſcency will eaſily overcome it, and convert it into its own nature; neither is it ſufficient that one organ ſhould be kept pure whilſt all the reſt are tainted and corrupt. When diſorders of this kind then prevail to ſuch a degree, we are not to be ſparing in our adminiſtration of acids; but the largeſt quantities ſeem indicated, both internally and externally, exhibited in various manners to the whole conſtitution.

The variety of diſorders that are connected with what we call fever, or a quick pulſe, an acceſſion

ceſſion of heat, and uneaſineſs in different parts of the body, is of ſuch extent, that it will be impoſſible for us to attend, in ſuch a treatiſe as this, to every particular. We ſhall content ourſelves, then, with conſidering fever as of three kinds, *inflammatory*, *malignant*, and *hectic*; and attend to the uſe of acids, when exhibited in each of theſe types of the diſeaſe.

An inflammatory fever ariſes from a violent action of the vaſcular ſyſtem, proceeding either from obſtructions induced by viſcidity, or from ſpaſms induced by acrimony. In conſequence of either of theſe, the heat of the body is conſiderably increaſed, the blood is circulated in a much quicker and more violent manner, the features are often ſwelled and protruded, and great pain ſometimes produced.

The action of acids is employed to remove each of thoſe ſymptoms; but in particular is calculated to aſſuage the heat, and regulate the too frequent motion. The manner by which it produces them is complicated and rather obſcure; it ſeems to depend, however,

1ſt, Upon ſuch ſedative power as ariſes from conſtant aſtriction. We have already obſerved the power of acids in this particular, when we obſerved that univerſal ſympathy that reigns between the ſtomach, and the whole ſyſtem, by which, in ſome meaſure, it concurs with every thing that af-

fects this particular part. This conſtriction, however, is not founded upon aſtringency alone; we muſt have recourſe to irritation likewiſe properly to explain it.

And although it ſeems in effect directly oppoſite to what we conſider as ſuch, yet a more attentive obſervation will convince us of its truth. The conſtriction that ariſes from aſtringency can never extend itſelf through the ſyſtem, for it is not the effect of an animated being. The aſſiſtance then of ſuch an action, as applies to the truly animal power, muſt be called in to account for this effect; but how it produces it raiſes the difficulty. All ſtimulants, when applied to our bodies in a very violent degree, become ſedative, and all ſedatives in a low degree, may be conſidered as ſtimulating. It has always been difficult to account for the power of ſedatives; and opium, the chief of them all, has never admitted of a juſt theory.

The fact ſeems to depend upon the great force of the ſtimulating matter which overcomes the tone of the fibre, and makes it inſenſible of that which affects it with much leſs force. This is not done, however, by a relaxation; the contrary to it, as we mentioned before, is produced; and to this aſtringency in the preſent caſe will greatly contribute, though, of itſelf, entirely unequal to ſo powerful an effect.

The

The conſequence of a violent conſtriction is always a ſenſe of cold, and the common influence of cold is to produce this circumſtance. Beſides this, the greater motion of the vaſcular ſyſtem, which probably increaſed the general heat, being taken off, a cooling quality, or rather a delivery from heat, is attributed to theſe bodies.

2dly, The cooling effect, and particularly what cauſes the increaſed motion to ſubſide, may ariſe from the power of acids, as irritating ſubſtances, to remove obſtructions in the ſmall veſſels of our ſyſtem; theſe obſtructions are often the cauſe of inflammatory fevers. We have ſeen the power of acids over the ſmall veſſels, particularly of the ſecretary organs; and we have ſeen the great ſympathy between the ſtomach and the whole body in an univerſal irritation.

3dly, The influence of acids in the cure of inflammatory fevers, may be derived from their power of correcting putrefaction and the bilious juice. A fever ſeldom finds the body, particularly the ſtomach, in proper order; nay, it often derives its ſource from the imbecility of this organ. But after it is once raiſed, the whole conſtitution feels its effects; the appetite fails, and the digeſtive powers are deprived of their office: in conſequence of this, the remains of indigeſted matter become corrupt and putrid, and the bile is collected to no purpoſe.

If

If they are ſuffered to continue in this ſtate without a remedy they add fuel to the fire, and prevent the action of any medicines which do not previouſly take off their offending progreſs. No medicine can be found to anſwer this better than what is the ſubject of our preſent attention. We may give them for this purpoſe in every ſtate of this kind of fever, and there is no doubt but they will be always found of conſiderable ſervice.

A putrid malignant fever derives its origin from a fomes of corruption that inhabits the incumbent air, from a degeneracy of our fluids that is induced by a relaxation and debility of the ſolid parts, or from corrupt and noiſome food that is taken into our ſtomach. In conſequence of this univerſal ſpaſm is raiſed throughout the ſyſtem, great heat and motion is occaſioned, and reſtleſſneſs, languor, and often pain, is induced. It enjoys, however, this difference from inflammatory fevers, that it is not built upon the ſtrength of the fibre, but on the contrary upon debility, and that the fluids, inſtead of oppoſing by their denſity, and occaſioning obſtructions, are weak and diſſolved, and can with difficulty be preſerved in their proper channels.

Acids, however, are equally fit to act in this as in fevers of the other kind. By their ſedative power they are fit to reſolve ſpaſms, and at the ſame time to ſtrengthen the fibre. They are to

be

be given, however, not to act upon the ſtomach only, but upon the whole ſyſtem; if poſſible to be carried through the lacteals, and diſtributed amongſt the ſecretions; when they arrive there they may produce their proper effect, and they may give a denſity to the fluid.

Their great and moſt efficacious power, however, is in correcting putrefaction, and from this alone may be derived every other which they are capable of producing. The great difficulty in theſe caſes may be in the method of exhibiting them; and to this purpoſe we ought not to delay any means that can poſſibly be made uſe of. The ſtrongeſt acids, given internally, can produce very ſlender effects when carried beyond the ſtomach, except in the minuteſt ſecretions. They may, however, have been given in too ſmall a quantity; the effects of large doſes have not been ſufficiently attended to, and the leaſt pure, as well as concentrated, have been generally employed.

Phyſicians have commonly contented themſelves with vinegar; and that in a weak ſtate, as well as a ſmall quantity, half a pint a day has been as much as has been generally exhibited; but how inconſiderable a quantity that is to correct ſo large a putrid maſs, need not be told. It is inconceivable how much, even of the ſtrongeſt acids a ſtomach will bear, when every thing within it tends to corrupt them; and it is inconceivable likewiſe, how

how ſmall a quantity ever enters and circulates with the blood, and can poſſibly contribute to deſtroy the putreſcency of its nature. If fifty drops of ſpirit of vitriol are diluted in two ounces of water, there will not be above a five hundredth part that will enter the ſub clavian vein at any one time.

We ſhould not decline then giving acids in a very large quantity, and very frequently, and try how much every ſtomach will bear, that we may be certain it has taken as much as it poſſibly can, before we pronounce from any theory, that it has received what is ſufficient for the purpoſes we intend. The moſt probable theory will juſtify the greateſt exceſſes, and many an ingenious thought has been buried in oblivion for want of a proper trial.

We are not only to employ acids in this kind of fever internally; a great probability of ſucceſs will ariſe likewiſe, from their external application. They may be uſed for this purpoſe in cataplaſms, in fumigations, or in clyſters: they may likewiſe be exhibited at the noſtrils; and by this means, not only reſtore vigour to the neighbouring parts, which are peculiarly depreſſed, but contribute their ſhare, by a continual abſorption, to the general intention over the whole ſyſtem.

The remote cauſes from which fevers are induced, may act not only upon the whole ſyſtem at once,

once, and deſtroy the entire habit of our conſtitution; they may attack particular parts alſo, and theſe parts may likewiſe receive an injury from bodies that are incapable of immediately affecting the whole maſs of our fluids. In conſequence of ſuch attacks, not only an inflammation is produced, but a new kind of matter is created, which admits of the higheſt degree of putrefaction, or at leaſt, of an acrimony equally as powerful. The abſorption of this matter, ſo acrid and ſtimulating, by veins, which are as numerous as every pore, cannot fail of exciting violent action in every fibre over which it paſſes, and induces a fever of a peculiar kind, which is generally known by the name of

Hectic. This fever is never continued, but in general recurs at peculiar periods, correſponding to the acceſſion of new matter in ulcers, from which it derives its ſource. In the fulleſt and moſt perfect health, we are ſubject to a diſorder of this nature; and every meal of which we partake, becomes the occaſion of it. Inactive, ſluggiſh, and inert matter, can never become the proper object of our food, becauſe it does not ſtimulate ſufficiently the powers of digeſtion.

It is neceſſary then, that a degree of ſtimulus be added to our aliment to give it force, and introduce it into our ſyſtem. This occaſions that temporary fever which every one experiences upon a full

full meal; which ſubſides upon its complete digeſtion, and recurs again as often as it is repeated. This progreſs is likewiſe obſerved by the moſt powerful hectics, which differs only from the other in the duration and virulence of its nature, the acrimony with which it is endued, and the parts upon which it is exerted.

All ulcers are capable of producing this diſorder in the extremities of the external parts, as well as thoſe more internal, and conſequently more important. The lungs, however, are its peculiar ſubject, and where it is moſt commonly exhibited; we ſhall therefore enter into a more diffuſe conſideration of the effects of acids upon this organ, by examining into the progreſs of their utility, in the ſeveral diſeaſes to which it is liable.

When we take into our view the tender nature of the ſubſtance, of which the lungs are compoſed, the variety of functions they are obliged to perform, and the variety of accidents to which they are ſubject, it is ſurprizing that no more fall a victim to diſeaſes of this organ, than what daily experience evinces: the ravage, however, which is committed by them is very great. The air that paſſes to and fro through the pulmonary veſſels, is often replete with the moſt noxious particles; and the conſtant circulation of the blood through them, carries with it all the venom with which that fluid is often infected. Hence it happens, that almoſt

every

every kind of fever affects them in a very particular manner: this accident however, is always reputed rather ſymptomatical than original, and requires the ſame cure as was indicated in the pulmonary diſeaſe.

Where it begins, however, in their ſubſtance, a moderate attention to their functions is pointed out. It puts on in general the form of inflammation, and hence requires the cooling regimen in the higheſt degree. Whether acids, however, are always indicated, is not abſolutely determined: the ſame reaſoning will not be ſo concluſive, we muſt confeſs, here, as in the cure of fevers of this kind in general. As greatly irritating, they may, indeed, both by ſympathy and immediate application, reſolve thoſe obſtructions that were the proximate cauſe of the diſeaſe.

The fibre, however, in theſe caſes, is often very ſtrong, and the fluids very denſe, viſcid, and inactive. Acids tend rather to promote theſe affections than to remove them; and hence they may prove a greater injury than relief, when the whole buſineſs is to be tranſacted in ſo ſmall a compaſs. In a common inflammatory fever, we muſt not attend merely either to the ſtrength of the fibre, or the ſtate of the fluid, becauſe we cannot apply any remedies immediately to them; but in glandular obſtructions an attention to both is highly neceſſary, becauſe our whole cure is directed

rected in removing that cauſe, which depends upon this affection. The more relaxing deobſtruents ſeem therefore more particularly to be indicated in ſuch caſes.

And although the cooling effects of acids may be highly deſired and wiſhed for, yet we muſt delay their too plentiful uſe, till the blood is more diſſolved, and there is ſome danger of a fever of the putrid kind ſucceeding. The ſame may be ſaid of that fever which often precedes hectics, and is dependent upon the ſtate of inflammation, with which the lungs are affected, previous to the production of an ulcer. In ſuch caſes as this, I have known acids bring on a violent ſtraitneſs upon the breath, which could only be removed by evacuations, and medicines of a more relaxing and deobſtruent nature.

We are not therefore to be too free with the uſe of theſe ſubſtances, till we are certain a hectic is produced; and this is known only by colliquation, or the ſpotting of a true pus. Too often phyſicians are miſtaken with regard to the nature of this fever in diſeaſes of the lungs, and imagine every fever that attends a conſumption to be truly of this kind. But it is not ſo; frequently a quick trembling and weak pulſe will be obſerved, where the blood is highly inflamed, and indicates, inſtead of corroborating anti-hectics, a more plentiful evacuation.

A true

A true hectic ſeems to be a fever that attends upon an abſorption of noxious matter, which can only ariſe when an ulcer is formed, and belongs not to an incipient conſumption, but to the laſt and moſt confirmed ſtate of that diſeaſe.

It is a common notion, that diarrhœas and dyſenteries ariſe from crude acid juices in the primæ viæ, which corrode and torment their tender fibres, and occaſion a dejection of the ſubſtances they contain. This is often the caſe; but it may be eaſily diſcovered by the remote cauſes from whence they proceed. If theſe diſorders depend upon a ſluggiſh inert humour of this nature, from the admiſſion of unripe fruit, or the acid in its natural ſtate, we ſhould certainly beware of the uſe of medicines, which may only add fuel to fire. But if even in ſuch caſes as theſe, the acid that prevails is owing to too great a fermentation of ripe and well digeſted fruits, the foſſil acids may be exhibited to advantage, becauſe they correct all proceſſes of this kind.

To examine the variety of chronical diſeaſes with which the body is infeſted, in order to diſcover how far they admit of acids for their cure, would be a very laborious taſk, that might lead into depths of endleſs reſearch. It will be ſufficient I hope for us to mark the general cauſes from which they often proceed, and to which the force of acids can be applied.

The principal uſe of acids in chronical diſeaſes ſeems to be required in thoſe that immediately affect the organs of digeſtion, the ſtomach, and alimentary canal: with this intention they correct putrefaction, and a redundancy of bile, and ſtrengthen the organ; in conſequence of this they prevent nauſea, and take off indigeſtion and flatulency; and they reſtore the proper order of the ſeveral ſecretions that are neceſſary for this purpoſe. They are of conſiderable uſe too in ſtopping hæmorrhages, an effect with which ſo many diſorders are connected. This they do by that ſurprizing ſedative quality with which they are poſſeſſed, and by that ſympathy between the ſtomach and ſo many different parts of the body.

The ingenious author of the Treatiſe on Acids, about the time he wrote it*, was a remarkable æra for brilliant diſcoveries in the ſcience of chemiſtry, the hiſtory of which has ſince made its way, and of which he could not then avail himſelf. The chemical luminaries that roſe in the European horizon within the laſt twenty years, have almoſt new-modelled this inſtructive ſcience. Happily, I hope, for future generations, chemiſtry has become a faſhionable part of a gentleman's education. A ſcience ſo much the ſource of arts and manufactures, and ſo perfectly interwoven with natural philoſophy, which has but one true infallible

* 1769.

ſtandard,

ſtandard, the teſt of experiment, ſeems well calculated to enlarge the boundaries of the human underſtanding, and prune the luxuriance of analogous reaſoning.

I ſincerely hope that a difference about names and modes, which ſeems at preſent to retard its progreſs, will ſhortly give way to that higher value. Such rational men as oppoſe each other on this fairy ground, ought to ſet upon the things themſelves.

Pardon the digreſſion of a man attached to his profeſſion.—The ingenious author we were juſt now ſpeaking of, at the time he wrote, thought it out of the reach of our art to ſeparate the mucilage from the vegetable acids*; later diſcoveries have proved it otherwiſe: and when the time arrives that thoſe acids are depurated, or freed from the mucilage that envelops them, by proceſſes carried on upon a large ſcale, it is not improbable, but that the uſe of the mineral acids in medicine may be wholly obviated; not that I wiſh to ſuggeſt any thing againſt their application in this intention, in proper hands duly diluted.

* Page 37.

Depuration of Lemon-juice from its Mucilage.

SATURATE boiling lemon-juice with powdered chalk, whoſe weight is to be noted. The neutral ſaline compound is ſcarcely more ſoluble in water than ſelenite; it therefore falls to the bottom, while the mucilage remains ſuſpended in the watery fluid, which muſt be decanted off: the remaining precipitate muſt then be waſhed with warm water until it comes off clear. To the powder thus edulcorated a quantity of vitriolic acid, ſufficient to ſaturate the chalk, and diluted with ten parts of water, muſt be added, and the mixture boiled a few minutes. The vitriolic acid combines with the lime, and forms ſelenite, which remains behind when the cold liquor is filtered; while the diſengaged acid of lemons remains diſſolved in the fluid.

This laſt muſt be evaporated to the conſiſtence of a thin ſyrup, and vitriolic acid added in ſmall portions to precipitate the lime, if any ſhould ſtill remain in combination with the acid of lemons. When no more precipitate is afforded by the addition of vitriolic acid, a farther evaporation ſeparates the pure acid of lemons in cryſtals. It is neceſſary that the vitriolic acid laſt added ſhould be rather in exceſs, becauſe the preſence of a ſmall quantity

of lime will prevent the cryſtallization: this exceſs will be found in the mother water.

The concrete acid of lemons conſiſtent in the air is very ſoluble in water, and exhibits ſtrong acid properties; its watery ſolution is decompoſed by length of time, by ſlow putrefaction. The acid of lemons abounds in unripe fruits.

The Aſtringent Principle.

MANY vegetable ſubſtances, ſuch as the huſks of nuts, the bark of the oak, the nut-gall, and ſundry other vegetable matters, abound with a ſubſtance which has been diſtinguiſhed by the name of the *aſtringent principle:* its diſtinguiſhing character is that of precipitating iron from its ſolution in acids, of a black colour.

The nut-gall is chiefly uſed for this and other purpoſes, when the application of this property is required; and, as it reſembles acids in its properties, the principle has been called the

Acid of Galls.

THE aſtringent principle, or acid of galls, is obtained by macerating the nut-gall in water. This infuſion reddens turnſole and blue paper: the acid is ſoluble in oils, ardent ſpirit, and æther.

Acids diſſolve it without impairing its property of forming a black precipitate with the ſolution of iron. The diſtilled product of nut-galls likewiſe poſſeſſes the ſame property: it decompoſes metalic ſolutions, and combines with their calces; gold and ſilver are precipitated by it in the metalic ſtate. It acts upon and diſſolves iron directly.

To obtain Acid of Nut-galls, in a cryſtallized Form.

TO one pound of powdered galls muſt be added ſix pounds of diſtilled water, and left to digeſt for a fortnight, at the temperature of between 70 and 80 degrees; after which the fluid muſt be filtered, and left to evaporate ſpontaneouſly in the open air, in ſtone ware, or a glaſs veſſel. The fluid becomes mouldy, and covered with a thick glutinous pellicle, abundance of glutinous flakes fall down; and, in the courſe of two or three months, the ſides of the veſſel appear covered with ſmall yellowiſh cryſtals, which are likewiſe very abundant at the under ſurface of the pellicle which covers the liquor. The fluid muſt then be decanted, and ardent ſpirit being poured upon the mucilaginous depoſition, the cryſtals and pellicle diſſolve the ſalt, by the aſſiſtance of heat, without touching the mucilage; and by evaporation of this ſpirituous ſolution, the pure *gallic acid* is obtained

tained in ſmall brilliant cryſtals, of a grey colour, inclining to yellow. It precipitates martial vitriol and other ſalts of iron, of a beautiful black colour, and ſtrongly reddens the tincture of turnſole. The acid of galls is ſoluble in twenty-four parts of cold water, or three of boiling water: it is much more ſoluble in ſpirits of wine; four parts being ſufficient at the common temperature, or one, when boiling hot.

The acid of nitre converts it into the *acid of ſugar*. The acid of gooſberries contains the acid of lemons and the acid of apples; they are both ſeparable from it: the acid of apples is converted into the *acid of ſugar* by the nitrous acid. The ſalt of ſorrel is obtained from the wood-ſorrel, for the purpoſes of commerce; it is obtainable from the acid of apples: the acid of ſorrel does not differ from the *acid of ſugar*. Treatment with the nitrous acid converts it into the *acetous acid* and fixed air; or totally into the latter, if the action be rapid. See the introduction.

PART THE FOURTH.

SCURVY AND DISEASES IN HOT CLIMATES.

The Scurvy, its loathſome Symptoms and Concomitants.

WE may obſerve with Dr. Lind, that the ſcurvy ſeems to be induced moſt frequently by the agency of certain external cauſes; which, according as their exiſtence is permanent or caſual, in proportion to the degree of violence with which they act, and according to their different combinations, give riſe to a diſeaſe more or leſs epidemical, and of various degrees of malignity.

Thus, where the cauſes productive of it are general and violent in a high degree, it becomes an *epidemic*, or univerſal calamity, and rages with great

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and diffuſive virulence; as happens often to ſeamen in long voyages, and ſometimes to armies. In treating of this diſeaſe, we ſhall chiefly confine our obſervations, and the application of the remedies we recommend, to theſe two claſſes of men, but in a manner equally applicable to all denominations of travellers by ſea and land, and ſettlers abroad, whether in hot or cold climates, but particularly the former.

From the hiſtory of moſt navigators that have faithfully journalized the diſeaſes they experienced at ſea, we cannot collect any thing to induce us to pronounce the ſcurvy the endemic of cold climates excluſively. The journals of moſt of the ſurgeons in our navy, and in the ſervice of the Eaſt India company, would contradict ſuch a poſition.

Yet the generality of them, and the phyſicians and ſurgeons of our land-forces, who have ſerved abroad, and experienced the inconveniences and fatigues of long voyages, and frequent cruizes from having no doubt attentively conſidered the incumbent atmoſphere, and the quick influence of its ſudden changes on the human ſyſtem; as cold and moiſture may have noted it to be a primary cauſe in any latitude, in promoting the ſcurvy.

The warmer the climate, the more ſenſible the effects of a ſudden change of this kind. The more relaxed the body from heat, and the greater

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the obſtruction of perſpiration, combined to a habit weakened by diſeaſe, worn down by fatigue, or reduced by an indigeſtible unaſſimilable diet, induce the ſcurvy.

Dr. Lind obſerved, that the learned Dr. Mead very juſtly aſcribed the moſt eſſential ſymptoms of the ſcurvy, to the agency of the air, which he conſidered as the principal agent in bringing on the ſcurvy.

How the ſea air acquires ſuch noxious qualities, he accounts for in the following manner:—In the firſt place, moiſture weakens its ſpring; next, a combination of foul particles, ſuch as are contained in the breath of many perſons crouded together, and ſome perhaps diſeaſed; then the filthineſs of the water ſtagnating in the bottom of the ſhip; laſtly, ſalts imbibed from the ſea, ſome of which may probably have proceeded from putrid animals in that element, may inſinuate themſelves into the blood, and, in the nature of a ferment, corrupt the whole maſs.

The ingenious author of Lord Anſon's Voyage, remarks, there is no difficulty in conceiving, that, as a continual ſupply of freſh air is neceſſary to all animal life; and as this air is ſo particular a fluid, that without loſing its elaſticity, or any of its obvious properties, it may be rendered unfit for this purpoſe, by mixing with ſome very ſubtile, and

otherwiſe

otherwiſe imperceptible effluvia. It may be eaſily conceived, I ſay, that the ſteams ariſing from the ocean, may have a tendency to render the air they are ſpread through leſs properly adapted to the ſupport of the life of terreſtrial animals, unleſs theſe ſteams be corrected by effluvia of another kind, which perhaps the land alone can afford.

On this obſervation of the writer of Anſon's Voyage, Dr. Lind makes this natural and judicious remark: 'That as we do not certainly know what this *pabulum vitæ* is in that fluid, which preſerves and ſupports animal life, the only means then we have to judge of the exiſtence of ſuch an hidden quality as may be ſuppoſed peculiar to the air of the ocean, muſt be from its effects.' He afterwards goes on to ſhow that the air of the Atlantic ocean, ſo far from being worſe, is better, or leſs prone to excite a ſcorbutic taint, than the air in the Britiſh channel, the Baltic, or upon the coaſts of Norway or Hudſon's bay. And that it has been found, that ſhips cruizing upon certain coaſts, at a very ſmall diſtance from the ſhore, where the air conſequently differs widely from that of the main ocean, in being impregnated with many particles from the land, and is almoſt the ſame with that of ſea-port towns, are equally, if not more afflicted with this diſeaſe, than others are in croſſing the ocean.

The

The qualities and uſe of this *pabulum vitæ* are now much better known to chemiſts and natural philoſophers; the nature of its production, and the manner of obtaining it: circumſtances that can be but conciſely inſiſted on here. For inſtance,

The reſpiration of animals produces the ſame effect on air as combuſtion does; and their conſtant heat appears to be an effect of the ſame nature. When a terreſtrial animal is included in a limited quantity of atmoſpheric air, it dies as ſoon as the air is vitiated. Vital air, in like circumſtances, maintains the life of animals much longer than common atmoſpheric air.

Vital air may be obtained by heat from nitre, from allum, from mercury calcined, without addition, and uſually called precipitate per ſe; from red precipitate, from minium, from manganeſe, and from lapis calaminaris. Moſt nitrous and vitriolic ſalts afford it by heat. It is contained in the bladders of ſea-weed, and in waters. The green vegetable matter formed in water, and that vegetates about the filtering-ſtones, emits it, when expoſed to the ſun's light; and it is found in general, that the leaves of plants, in like circumſtances, emit vital air: whence it appears that there are abundant proviſion for reſtoring the purity of the land air, which is continually injured by combuſtion,

buſtion, reſpiration, fermentation, and other proceſſes.

Vegetables do not thrive in vital air. Theſe appear to render common air purer, by abſorbing its phlogiſticated or noxious part. They emit vital air when the ſun ſhines upon them: this is ſuppoſed to ariſe from the decompoſition of water.

Water may be produced by combuſtion of vital and inflammable air. If a mixture of about two parts, by meaſure, of inflammable air, with one of vital air, be ſet on fire, in a ſtrong incloſed veſſel, which may be done by the electric ſpark, the airs, if pure, will almoſt totally diſappear, and the product will be water and an acid.

Till lately the produce was thought to be mere water; and ſeveral eminent chemiſts at *Paris* have ſtrongly inſiſted, that it was equal in weight to the two airs made uſe of. The agreement however, has never been proved; and, as every kind of air uſually holds a large portion of water in ſolution, from which the aqueous product might be derived, it ſtill remains a problem to be decided, whether water, with reſpect to the preſent ſtate of our knowledge, be a ſimple or a compound ſubſtance?

Thus far modern diſcoveries have aſſiſted in enlarging our knowledge of the compoſition of the atmoſphere. It is enough for our preſent purpoſe, that they have rendered it more than proba-

ble,

ble, that the air of the atmoſphere conſiſts of a mixture of a vital, and a noxious part.

Its gravity, expanſion, and denſity, the world has long been acquainted with. This fluid is ſo ſubject to change, that it is hardly poſſible to find an equal quantity of air at different times, in the ſame place, of equal weight. Its preſſure is governed by its weight: as heat expands, and cold condenſes the elaſtic fluids that compoſe it, the different ſeaſons of the year in any climate, and the difference between hot and cold climates, are not only very apparent, but almoſt incredible.

Accurate obſervations have enabled philoſophers to determine the difference between its greateſt and leaſt gravity in Europe, to be nearly one-tenth part, which induces a preſſure nearly equal to 3980 pounds, troy, on the body of a man, allowing it to contain 14½ ſquare feet. This remarkable difference muſt greatly affect the animal functions, and conſequently our health. If, for inſtance, a perſon be aſthmatic, he will find his diſorder increaſe with the levity of the air; for, ſince pure, denſe, elaſtic air, is alone capable of diſtending his lungs in reſpiration, it will be leſs capable of performing the ſame office, when its weight and elaſticity are decreaſed; and conſequently the valetudinarian will find his difficulty of breathing increaſe in proportion.

It is a common error to conceive the air heavieſt

vieſt in foggy weather; but the contrary is the fact: for the air is actually heavieſt in fine weather. This error flows from miſtaking the cauſe. When the fibres and nerves are braced and conſtringed by the great preſſure of the air, the blood-veſſels act with their full power and natural vigour, a proper velocity is given to the fluids, and a greater momentum to overcome obſtructions in the capillaries. Hence, we find ourſelves alert and light, and thence fancy that the air is light alſo.

On the contrary, when the preſſure is leſſened by near 3980 pounds, the fibres are relaxed, the contractile force of the veſſels diminiſhed, a languid circulation enſues, obſtructions, &c. happen, and produce agues, fevers, aches, &c. in ſome; and in all, a ſort of indolence, or gloomy inactivity, and heavineſs; conſequences which we imagine reſult from the heavineſs of the air; whereas they in reality flow from its levity.

The modern diſcoveries of chemical and philoſophical reſearch having brought us acquainted with ſo many, and ample means provided by Providence, of repleniſhing the atmoſphere at land with the vital principle, reſpirable air; until future inveſtigation leads us to diſcover that ſome ſuch proviſion has been made for reſtoring it at ſea, other than we are acquainted with at preſent, without deviating from the poſition we have laid down, of being biaſſed by no theory, we cannot

reſiſt

reſiſt the impulſe of exerciſing our judgment ſo far, as to freely acknowledge, that we are diſpoſed to favour the opinion of Dr. Mead, with reſpect to the agency of air inducing the ſcurvy; and think with the author of Anſon's Voyage, and others, that the waters of the ocean have the property of vitiating the reſpirable part of the atmoſphere.

The waters of the ocean conſiſt of many ſaline, earthy, aerial matters, capable, when even partially decompoſed, of phlogiſticating or vitiating the vital air of the atmoſphere. To the mutual action of theſe two elements on each other, the ſea owes its turbulence and its waves: to the diurnal motion of the earth, and the courſe of the ſun in the zodiac, we are chiefly to aſcribe the changes of the atmoſphere. Theſe cauſes combined, produce tempeſts, hurricanes, &c. and probably vitiate the air at ſea, although ſuppoſed to improve it at land.

Dr. Prieſtley has found that pure air is conſiderably depraved by agitation in the pureſt water. If we take into conſideration another inference drawn from the curious experiments of the learned Doctor, that VEGETATION *is one of the means employed by nature to purify air tainted by reſpiration, putrefaction, or by combuſtion*; it would be taking no bad ground to advance, that the ſcurvy and putrid malignant diſeaſes were as aſcribable to the ſea as to the land air.

It

It would exceed the bounds that we neceſſarily preſcribe to ourſelves, to enter farther into this diſcuſſion, by obſerving the incredible quantity of vital air conſumed by the innumerable inhabitants of the deep, which they imbibe from the ſea-water by means of their gills. Whatever decompoſition the waters of the ocean may undergo from this curious proceſs of reſpiration, or by what animal or other proceſs this principle may be again reſtored to the water, for the maintenance of the life of its numerous inhabitants, we do not pretend to know, nor are we diſpoſed at preſent to inquire into.

It is enough, and probably may be thought too much, for us to ſay, that the agency of the atmoſphere has not hitherto been ſufficiently attended to by thoſe who have otherwiſe ſo ably handled this ſubject. The judicious reader, it is hoped, will well conſider theſe obſervations on the atmoſphere; to which he can allow due force, without overlooking the agency, of perhaps, more prevalent cauſes of the ſcurvy.

Notwithſtanding the ſcurvy, from local, from accidental, and from concurring cauſes, may rage, ſometimes in one, and ſometimes in another part of the world; and at different periods at the ſame place; and alſo that it may ſeem ſtationary, and probably is ſo in many places: yet, as it ſhould ſeem, from what we can learn, that it is a diſeaſe

from which no country or climate can be reckoned entirely free, we do not conceive altogether, why it ſhould be conſidered the endemic of northern latitudes.

It is found to rage in the Eaſt Indies, Africa, and the Weſt Indies, and alſo in the warmer, as well as the colder, parts of Europe and America; particularly on board ſhips in thoſe different quarters of the world where heat is predominant. The grand ocean, the atmoſphere, that circuminvolves the whole world; the changes of which affect the principles of animal and vegetable life, no doubt has great influence in this loathſome diſeaſe.

The admirable wiſdom and goodneſs of Providence, is perhaps in nothing more diſtinguiſhable, than in the balance kept up between vegetable and animal life. Vital air, indiſpenſably neceſſary for the reſpiration and preſervation of the animal creation, we have ſeen is the product of vegetables and light. This air, phlogiſticated by animal reſpiration, becomes neceſſary to the preſervation and exiſtence of the vegetable kingdom.

By the mutual compoſition and decompoſition of theſe elaſtic fluids, this wonderful circulation of the *pabulum vitæ* of both, may be ſaid to reciprocally preſerve the exiſtence of each other.

It has been obſerved by Dr. Lind and others, that ſalt beef and ſalt pork are found by every one's

one's experience to be much harder and more difficult of digeſtion than freſh meats, unleſs corrected by bread, fermented drink, or freſh vegetables. Theſe, with ſtock fiſh, ſalt fiſh, and ſea biſcuit, and the ſhip pudding, compoſed of flour, water, and pickled ſuet, a tenacious viſcid maſs, with other indigeſtible food often uſed at ſea, promote the ſea-ſcurvy. Their noxious qualities and ſcorbutic tendency muſt ſtill be increaſed, in proportion as theſe proviſions are unſound or corrupted, from the length of the voyage, and other concurring cauſes.

It has long appeared to me, ſays Dr. Blane, that the ſcurvy is owing rather to a defect of nouriſhment than to a vitiated ſtate of it. In fact, that ſort of food which is ſuppoſed moſt commonly to induce the ſcurvy, is, in moſt caſes, not putrid, but is in an unnatural and depraved ſtate by being drained of its juices, which run off in brine; and perhaps ſome of the more ſubtile and nutritious parts are waſted by evaporation.

It is not found that ſalt of itſelf has any effect in inducing the ſcurvy; and indeed it can be induced under a ſtate of diet in which there is no ſalt, as we know from the inſtances quoted by Dr. Lind; and ſome caſes are related by Dr. Monro and Dr. Milman, in the Medical Tranſactions, which are in proof of the ſame opinion.

But the caſe moſt in point, to prove that it depends on a defect of aliment is that of Dr. Shark; who, by way of experiment on himſelf, reduced his diet to the leaſt quantity he could ſubſiſt on, and was thereupon affected with the ſymptoms of the ſea-ſcurvy. I have alſo known ſome ſymptoms of it ariſe in old people, in conſequence of long abſtinence, owing to the want of appetite.

It would appear that the aliment we take in acts in two ways in increaſing the vigour of the body. Firſt, by aſſimilation, whereby it affords the matter, of which the ſolids of the body are made, in order to carry on growth in youth, and to repair the waſte of parts in adult age. A very ſmall quantity of matter is neceſſary for theſe purpoſes; and, as a proof of it, we ſee people ſupported equally well with very different quantities and qualities of food.

Secondly, food is neceſſary as a ſtimulus, either by a power it has of ſoothing the nerves of the ſtomach, and the other ſurfaces to which it is applied, or by its volume in diſtending the inteſtines and blood-veſſels.

It is upon this principle that luxury renders the great quantities of food we take in neceſſary; and thoſe ſpecies of food which ſatisfy moſt by their ſtimulus, are by no means ſuch as are the moſt nutritious.

It

It is alſo upon this principle, that, in caſes of accidental hardſhip from want of food, or in barren or inclement countries where food is ſcarce, the body is ſupported in ſome meaſure by what contains little or no nutritious matter, ſuch as pure water, or the bark of trees powdered, and kneaded into a ſort of bread, as we are told of the inhabitants of Lapland.

There are other familiar and well-eſtabliſhed acts, which prove that, either from the influence of diſeaſe, from habits of life, or the nature of particular animals, life can go on for a length of time with little or no aliment. This is the caſe in fevers, in ſea-ſickneſs, in certain ſingular caſes that have been recorded*, in torpid animals, and in animals of cold blood. Though a man in health will die if deprived of food for a few days, it does not follow that this is owing to the want of matter to repair the waſte of the body.

The craving for food, and the faintneſs from long abſtinence, ariſe from want of the accuſtomed ſtimulus, eſpecially on thoſe who are uſed to live well; and a perſon feels himſelf moſt refreſhed by food and drink when newly taken in, and before it can be applied to the purpoſe of nutrition.

As there is a continual waſte and decay, however, both of our fluids and ſolids, ſome degree of

* See under the head bile, part the firſt; and in the Medical Eſſays of Edinburgh, Haller, &c.

reparation

reparation is abſolutely neceſſary, eſpecially to animals of warm blood; and ſuch *ingeſta* as would give the ſtimulus of food, without being poſſeſſed of any nutritious principle, would indeed continue life for a certain time, but diſeaſe would enſue.

The proviſions uſed at ſea, ſays Dr. Blane, anſwer, in a great meaſure, to this deſcription: for, unleſs the powers of digeſtion and aſſimilation are remarkably ſtrong, ſalt beef and biſcuit, which have been long kept, do not contain much more nouriſhment than ſaw-duſt, or the bark of a tree, and the diſeaſe induced by this diet is the ſcurvy.

The nature and ſymptoms of the ſcurvy countenance this opinion: for, as the means of renewing the animal matter of our bodies is withdrawn under this courſe of diet, nature, in conſequence of an accommodating principle, obſerves a ſort of frugality, and the animal œconomy adopts ſuch meaſures as may be productive of the leaſt poſſible waſte and corruption of the fluids. Accordingly all the ſecretions become ſcanty; and, in particular, one of the firſt ſymptoms of this diſeaſe, is a ſuppreſſion of perſpiration, as appears by the gooſe-ſkin that attends it. There is a paucity of urine: there is alſo a great languor in the circulation, which may be conſidered either as a means adopted by nature to prevent that vitiated and effete ſtate of the fluids which a briſker action might induce; or it may happen from want of that due ſupply of

nouriſhment

nouriſhment neceſſary to produce a vigorous action of all the functions.

We ſhall not take upon us to ſupport that the ſcurvy is owing to depletion or inanition, though we are of opinion that it may be, and frequently is, a prediſpoſing cauſe, and allow it to be rationally accounted for both by Dr. Lind and Dr. Blane; whoſe great experience in the line of their profeſſion entitles them to due credit.

We have ſeen in another place, and with great plauſibility and good ſenſe, repletion aſſigned to be the principal cauſe of the ſcurvy, by Mr. Thomas Trotter, a ſurgeon of the navy. A diet of farinaceous and legumious food, boiled up and rendered palatable with guinea-pepper, palm-oil, and ſalt, given in exceſs to the *Negroes* on board a ſlave-ſhip, to which he was at the time ſurgeon, brought on the ſcurvy both on the coaſt of Africa, and when at ſea on the middle paſſage, to which we refer the reader for the exerciſe of his own judgment.

Various have been the modes of practice ſuggeſted for the cure of this diſeaſe, which in their turn have ſucceeded each other, varying with the ſyſtem adopted, or the faſhionable theory of the times; and theſe often influenced with a laudable zeal to preſerve the health and lives of our ſeamen from the baneful ravages of this diſeaſe on long

voyages; which deſerved well of government, and the nation at large, for whoſe benefit they were written.

As innumerable as the *cauſes* are the *ſymptoms* and appearances put on by this deſtructive diſeaſe, both at ſea and on ſhore. On land it has been uſually, but I ſhall not pretend to ſay with what truth, conſidered as the endemic of northern latitudes, with much more reaſon of marſhy ſituations, particularly of ſalt-marſhes, and foggy moiſt air: of people ſhut up in garriſons, or carrying on a blockade, or expoſed to the viciſſitudes of the atmoſphere in camps; of priſons, of hoſpitals, and of ſhips on long voyages; frequently making a rapid impreſſion on convaleſcents, diſabled or debilitated by preceding diſeaſe.

Originating probably in a greater or leſs degree, from obſtructed perſpiration, and a relaxed habit of body; breathing a moiſt foul air, whether contaminated with the phlogiſtic exhalations of ſea or land; the perſpirable matter, or the diſeaſed breath of each other; putrid effluvia, or air rendered noxious or unfit for reſpiration from any cauſe whatever, or taken up by abſorption into the animal ſyſtem, ſo as to act as a putrid leven or ſcorbutic ferment.

The pulſe, the blood, nor its ſecretions, manifeſt no uniform indications for the guidance of the

the young practitioner in this diſeaſe. There is nothing in which the faculty are leſs agreed, than in the varied appearances of the blood, recently drawn from the ſcorbutic patient: nor could the moſt ſyſtematic arrangement that we ſhould be able to make from their different obſervations on this important fluid, enable us even to form a ſtandard for our own government.

The ſame may be ſaid of the ſecretions of the blood: the urine and ſweat are not always different even from that of people in health. In ſome very far advanced and bad caſes, the urine from the putrid craſſamentum of the blood, as in fevers, ſometimes acquires a fleam-colour; and after ſtanding an hour or two, gathers a cloud, reſembling what is ſeen in the crude water of acute diſtempers, with ſome oily matter on the ſurface; which is a ſtrong indication that the animal ſceptic proceſs is far advanced in its degeneracy towards putrefaction.

As the pulſe, blood, and urine are not uniform indexes of the riſe and progreſs of this diſeaſe, they conſequently have been the ſource of many fatal miſtakes.

The mouth, gums, fauces, and organ of reſpiration, are uſually much affected with the putrid, corroſive, ſcorbutic taint: and no part of the ſyſtem ſeems exempted from its deſtructive influence, except the brain. It ſhould ſeem alſo, that

ſcorbutic

ſcorbutic patients, from preſerving their appetite to the laſt, ſuffer leſs in the immediate organ of digeſtion, than perhaps in any other part of the animal ſyſtem, the brain only as before excepted.

Offenſive breath, difficulty of breathing, a ſallow bloated countenance, diſcolouration of the ſkin, with purple, yellow, or livid ſpots, uſually not riſing above the ſurface of the ſkin; a diſinclination to move or ſtir about, with oppreſſion and wearineſs; unuſual timidity and dejection of ſpirits; lethargies, ſwelling of the legs; above all ſpongy, putrid, bleeding gums; hardneſs in the muſcular part of the arm, and calves of the legs; hardneſs with contractions of the limbs; ſometimes with a diſcolouration of the ſkin of the part affected; contractions of the elbow and ham; frequently without hardneſs or increaſe of bulk of the part, and ſometimes with diſcolouration, particularly with variegated ſtreaks on the thighs, waſting of the legs; pains like thoſe of the chronic rheumatiſm; acute tranſient pains, ſucceeded as the diſeaſe advances, by others much more exquiſite; tremblings, fainting, convulſive fits; internal as well as external effuſions of blood, and by vomit, ſtool, and even through the pores of the ſkin; a ſolution of continuity, or the breaking out of old wounds and ſores, and a reſolution of the callous matter that nature had furniſhed as a cement to fractured bones;

bones; a thick clot of blood forming on the ſurface of ulcers, which, from its reſemblance, the ſailors call bullock's-liver.

From theſe and many more ſymptoms common to this diſeaſe, the concluſion generally drawn is, that the true *ſea-ſcurvy* is a relaxed ſtate of the ſolids, and a putrid diſſolution of the fluids. To ſuch morbid impreſſions the life of a ſeaman is equally expoſed, whether deſtined to navigate in a hot or cold climate; and to which it is not improbable the heat of the climate does not a little contribute: heat and moiſture being the parents of corruption.

This much we know from experience, that many ſymptoms of the ſcurvy are rather aggravated than alleviated in warm or hot climates; particularly on board ſhips, and in want of vegetables and the vegetable acids, which might be rendered mild in more temperate ſituations, and even leſs obſtinate in cold latitudes.

When we conſider the ſymptoms, and compare them with the prediſpoſing and exciting cauſes of the diſeaſe, reaſon ſuggeſts, both for its prevention and cure, pure dry air, with a diet of eaſy digeſtion; conſiſting of a due mixture of animal and vegetable food, with an indulgence in the free uſe of the tart acerb fruits in ſeaſon, and their acid juices, where ſuch a regimen can be procured; and in default thereof, tonic antiſeptic medicines, ſuch as our antifebrile and *antiſcorbutic* powders, which are well

well calculated to counteract the cauſes, and palliate the moſt urgent ſymptoms of the diſeaſe, by bracing the ſolids, and evacuating the ſcorbutic acrimony by perſpiration and urine, until the diſorder is firſt got under, and at length ſubdued.

A temperate region and denſe atmoſphere, of which a pure dry air is the offspring, are only procurable in a temperate or moderately cold country, and by thoſe who can afford to correct the cold and moiſture by a dry apartment properly heated, and ventilated by means of a fire, and ſuitable conveniences that render life comfortable; ſome few places only excepted, that naturally enjoy a pure dry air, the denſity of which muſt vary in all places with the changes of the atmoſphere.

Doubtleſs there is no period of the medical hiſtory of this diſeaſe, in which it is ſo well underſtood as the preſent, from its having been an object of enquiry for ſome years paſt, that has engaged the attention of many able men: but as this treatiſe may fall into the hands of young practitioners, I beg leave on their account to touch lightly on the ſymptoms of ſuch diſeaſes as have, from a ſuppoſed ſimilarity of appearances been too frequently miſtaken for, and confounded with the *true ſcurvy*.

Some of thoſe concomitants, or appearances, frequently miſtaken for the true ſcurvy.

When there is a waſting of the body without a fever, and other hectic ſymptoms, it is called an *athrophy*; which is relieved by the uſe of our antifebrile powders, preceded by a vomit of ipecacuanha, when the legs ſwell, and the digeſtion bad; and uſually cured by the frequent uſe of laxatives, and a light reſtorative diet, riding on horſeback, air, and the cortex Peruvianus. See hectic, page 178 and 203.

If *ſcrophulous* ſymptoms attend with ſchirrus, tumor, or *cancerous ulcer*, the internal uſe, and the external application of the antifebrile powder on the indurated part, if on the ſurface or viſible there; if not the powders may be aſſiſted with the bark and acids, and a decoction of the woods. Scrophulous tumors are commonly ſeated in the glands, and when in or about the neck, are uſually termed the *king's-evil.*

The diet ſhould be light, and eaſy of digeſtion; exerciſe in moderation will be conducive to the reeſtabliſhment of health. Pork, cheeſe, ſmoaked, dried, and ſalt meats, fiſh, and high aromatic ſauces are not allowable.

If

If ſymptoms of the *jaundice* appear; that is, an univerſal tinge of yellow over the ſkin, chiefly obſervable in the whites of the eyes; an inactivity, laſſitude, anxiety; ſickneſs and oppreſſion at the breaſt; difficult reſpiration; pain about the pit of the ſtomach; a dry ſkin, with itching and coſtiveneſs; high-coloured urine, with a bitter taſte in the mouth; hard, white, greyiſh ſtools, begin with bleeding, and purge with an infuſion of ſenna and carraway-ſeeds; take our antifebrile powders, and drink plentifully of a decoction of juniper and Harrowgate-water alternately. If an inflammation of the liver is ſuſpected, reſort to the liberal uſe of the antifebrile powder, and purſue the directions under this head, page : pay the ſame attention to diet as in the preceding article.

If the *leproſy of the Arabians*, known in the Weſt Indies by the name of the *black-ſcurvy*, a contagious *African* diſeaſe: it comes on gradually; firſt in numerous ſpots on the body, of a yellow-brown caſt, that ſoon turn to either purple or copper-colour, and chiefly appear in the forehead and ſkin; they increaſe and grow thick, with hard ſcales and bad blotches, and uſually on the lobes of the ears; moſt of which ſymptoms are alſo obſerved in the *elephantiaſis*. Bleed, and vomit with emetic tartar; then ſteadily purſue a courſe of the antifebrile powders, for three months at leaſt,

leaſt, with the uſe of acid dilutents, aperient infuſion of ſenna and carraway-ſeeds, and gentle cathartics. All ſorts of picked, ſalted, dried, and ſmoaked meats, cheeſe, pork, fiſh, high ſauces, and ſpirits are not to be allowed.

If ſymptoms of the *leproſy of the Greeks* appear, a diſeaſe better known in hot climates than in theſe kingdoms, yet ſufficiently deplorable, and not eaſily cured. It appears in dry ſcurf-ſcales and ſcabs, and deeper rooted in the ſkin than the leproſy of the Arabians, attended with a greater itching; often deſtroys the ſkin, and even the excretory ducts.

For the cure of which, the antifebrile powder, No. 2, with a decoction of the woods, hereunto annexed, is a ſovereign remedy: keeping the body lax, with a ſpare diet, eaſy of digeſtion; the frequent uſe of the warm bath, and the occaſional uſe of our *antiſcorbutic ointment.*

The leproſy commonly met with in theſe kingdoms, ſeems to be a local diſeaſe of the cutis, its veſſels and glands; appearing in dry, white, thin, ſcurfy ſcales, uſually attended with an itching. They ſeldom put on a humid complexion, but in very groſs habits. In hard drinkers, it often appears in the face and hands only.

The leproſy is ſeldom dangerous, though always difficult to cure, particularly in grown people.

ple. In children it ſometimes appears on ſtopping of the running behind the ears: it has alſo followed the confluent ſmall-pox, a ſtubborn itch, &c. and ſometimes appears under the form of a ſcabby, or *ſcald-head*; and is ſuppoſed to be in ſome caſes hereditary. It often appears in the glands of the neck, and parts adjacent, when it is called a *ſtruma*.

The humid is eſteemed eaſier of cure than the dry; much depends on the cauſe, conſtitution, continuance, &c. The antifebrile powders, and antiſcorbutic ointment, with a ſlender liquid diet, keeping the body laxative, will palliate the moſt urgent ſymptoms, and by perſeverance, conquer this obſtinate malady. The antiſcorbutic powder given going to bed, alternated with the antifebrile powder, No. 2, and perſpiration encouraged, as directed in the ſcurvy; and the ſcabby deffodations of the ſkin touched with the antiſcorbutic ointment going to reſt, on ſuch nights as the powders are not exhibited, will contribute much to cleanſing the ſkin, and opening the excretory ducts, to let off the peccant matter, and promote the cure.

The true ſcurvy, as already obſerved, not being of a ſcabby ſcurfy nature, as in theſe caſes; but appearing of a purple, yellow, or livid colour, in ſpots uſually not raiſed above the ſurface of the ſkin,

ſkin, but generally reſembling bruiſed marks and flea-bites, and not requiring a ſimilar treatment with thoſe diſeaſes, ſhould be neceſſarily diſtinguiſhed from them.

There are other concomitants that more uniformly attend the true ſcurvy than thoſe enumerated. Thoſe are dropſical ſwellings in almoſt every part of the body, eſpecially in the cheſt and legs, which are always difficult to remove, and ſometimes prove fatal. Conſiderable quantities of water frequently accumulate in the breaſt, that occaſion a violent and inceſſant cough, with a conſtant ſpitting of tough phlegm, and ſometimes a difficulty of breathing. Œdematous ſwellings of the legs accompany theſe diſorders of the breaſt, and are the ſure ſigns of water being in that cavity, and not unfrequently communicate with each other; though it muſt be owned, ſays Dr. Lind, that ſuch paſſages are unknown to anatomiſts.

The true ſcurvy often aſſociates with a flux, particularly when unaccompanied with a fever, a fever being rarely preſent with this diſeaſe; although the quick and low pulſe, and heat of the ſkin, have too often been fatally miſtaken for a fever. It is true, we meet with few inſtances of an epidemical malignant fever unaccompanied with a flux, either uſhering it in, or ſymptomatically attending its decline, but with which the ſcurvy is rarely aſſociated.

Under the head *Comparative effects of our medicines*, it is obſerved, the *bark*, though a bitter, aſtringent, and antiſeptic medicine, cannot be ſucceſsfully employed in the cure of the ſcurvy, as many bad ſymptoms in this diſeaſe forbid it; in which diſeaſe our medicines are ſpecifics, but accompanied by them it may be exhibited with ſafety.

Although it is certain, and not without reaſon, that *antimony*, which has ſo long been found uſeful in theſe diſeaſes ſo often miſtaken for the ſcurvy, has been lately recommended in the cure of the ſea ſcurvy alſo; yet it is reaſonably to be expected, that medicines like ours, poſſeſſing all the good, without any of the bad effects, or inconveniences attending the adminiſtration of the preparations of this important ſemi-metal, ſhould in this diſeaſe ſuperſede its uſe.

In hæmorrhages, and in putreſcent and ſcorbutic diſeaſes, where *mercury* would exaſperate the ſymptoms, our medicines are next to infallible in the cure; particularly in the ſea ſcurvy, when joined to the liberal uſe of vegetable acids, bitters, and aſtringents. Cream of tartar is a vegetable acid, dry, portable, convenient, and uſeful in thoſe and other intentions to the traveller.

Opium has been recommended, when diluted in brandy, by Dr. Milman, for the cure of the ſea ſcurvy; probably from perſpiratives being found

found beneficial in the cure of this diſeaſe, although our medicines reſemble opium both in their internal and external effects; yet it muſt be acknowledged that it is in an under proportion; but being tonic and antiſeptic themſelves, and at the ſame time a corrector of the bark, they naturally ſuperſede the uſe of opium.

Mercury, or the preparations of it, although found ſalutary in ſundry cutaneous defeodations and impurities of the blood and juices, vulgarly called ſcorbutic, are always pernicious in the true ſcurvy, and even dangerous in conſtitutions inclining to this diſeaſe, when the humours are acrimonious and colliquated, and diſpoſed to a putreſcent ſtate. In ſuch circumſtances, mercurials are apt to operate with violence: ſmall doſes have occaſioned high and laſting ſalivations. The removal of theſe accidents are to be attempted by clyſters, purgatives, and diaphoretics; or ſuch other means conſiſtent with the patient's ſtrength, and the particular ſymptoms, as may procure a ſpeedy revulſion from the ſalival ducts. Theſe particulars relative to the potent remedies enumerated, are reiterated here, to make the deeper impreſſion on the mind of the reader. And to guard the young practitioner from unwarily adminiſtering mercury in a venereal taint, accompanied with ſcorbutic ſymptoms, &c.

We ſhall take occaſion to reiterate what we

have ſaid on *ſquills* under the concomitants of the ague, in which we are juſtified on the authority of Doctors Lind and Home.

Dr. Home obſerves the ſquills at firſt produce purgings, and increaſe the urine, which are their natural effects, and ſometimes reduce the hydropic ſwellings a little. In a few days, ſooner or later, a nauſea and vomiting came on, often ſevere and attended with acute pain in the ſtomach. During this fit, the pulſe was ſo remarkably ſlow as to alarm, and induce the Doctor to give laudanum and cordials to ſtop the vomiting, which he afterwards found to be a conſtant effect of that ſtate, attended with no danger: the ſquills uſed were perfectly exiccated: the quantity uſed for a doſe varies according to the conſtitution and urgency of the ſymptoms; three or four grains, twice a day, were generally found ſufficient, though much greater was given in peculiar habits without ſucceſs. It being the Doctor's deſign at firſt to excite urine, he gave them with a little nitre and nutmeg, to correct them, which formula he always continued. The waters diſappeared ſo ſuddenly in ſome, that fearing the bad effects that follow the paracenteſis, he thought it right to order a bandage to the belly, and tonic medicines; as bark, ſteel, and bitters to brace the ſyſtem.

Dr. Lind recommends oxymel of ſquills as an expectorant, diuretic, and antiſcorbutic medicine, of great efficacy. *Mode*

Mode of Exhibiting the Antiſcorbutic, Antifebrile Medicines in the Scurvy.

IN order thoroughly to ſubdue the ſcorbutic taint, the medical intentions muſt be to keep open, by gentle evacuations, the outlets and emuctories of the body, viz. the belly, urinary paſſages, and the excretory ducts of the ſkin. And it is remarkable that all theſe evacuations are moſt ſucceſsfully promoted, when joined with an antiſcorbutic diet. For a mild laxative employ terra foliata tartari, or

Take terra foliata tartari from one to ij ʒ.
Eſſential oil of peppermint x drops.
Mucilage of gum arabic ſufficient to make a bolus.

This bolus uſually operates plentifully by ſtool, and promotes a copious diſcharge of urine.

Take terra foliata tartari from ij ℈ to j ʒ ſs.
Antiſcorbutic powder, No. 1, from v to x grains.
Mucilage of gum arabic ſufficient to make a bolus.

This laſt, if there is a redundance of bile in the firſt paſſages, will eject it upwards or downwards. After theſe evacuations are properly encouraged to a moderate extent, the patient ſhould be kept warm, and ſupplied with ſmall but frequent

quent draughts of vinegar or muſtard whey. This will promote a gentle diaphoreſis, more or leſs copious, but always ſalutary and correſpondent to every intention propoſed.

In default of milk to make whey, a ſlight decoction of ginger acidulated with vinegar, and made palatable with wine, will prove a good ſuccedaneum.

Sweat is an evacuation from which ſcorbutic patients derive the greateſt advantage, particularly ſuch as are afflicted with obſtinate dropſical ſwellings, and may be procured with remarkable ſucceſs by the antifebrile powder, No. 1; the management of which may be gathered from the directions given in their exhibition, diſtributed throughout this work, in aid of which the warm bath may be beneficially added. On board ſhip, where freſh water is uſually ſcarce, ſea water has been advantageouſly employed for making a warm bath.

In evacuating the morbid acrimony, the utmoſt care muſt be taken to ſupport the ſtrength and ſpirits of the patient, under the languor and dejection of this debilitating diſeaſe.

It is to be obſerved of this diſeaſe, eſpecially in an advanced ſtate of it, that it by no means admits of bleeding, even when the moſt acute pains, a high degree of fever, and dangerous hæmorrhages, would ſeem to indicate it. And, though the body ſhould at all times be kept open, it would

be

be very injudicious to adminiſter violent purges. Laxative food is preferable to laxative medicines; ſuch are green vegetables, acid fruits, or their juices: when they are not procurable, barley-water and currants, ſtewed prunes, cream of tartar, &c. muſt be ſubſtituted in their ſtead.

Perſons in the advanced ſtage of this diſeaſe are not, without great caution, to be expoſed to a ſudden change of air; or brought up from laying a bed below, in the hold of the ſhip, to the freſh air, in order to their being landed. On this occaſion, though ſeemingly pretty hearty, a glaſs of wine ſhould be given them, well acidulated with lemon or orange juice, which is likewiſe the beſt cordial in their fainting fits.

After long abſtinence from greens and fruits, a ſcorbutic perſon ſhould be treated like one almoſt ſtarved; that is, not permitted for a few days to eat voraciouſly, or ſurfeit himſelf with them; they may otherwiſe bring on a flux that may prove mortal. The neceſſity for cleanlineſs, and a conſtant ventilation, or admiſſion of air, may be gathered from the following obſervations.

The living body is ſurrounded by an atmoſphere of excrementitious matter, iſſuing from every pore of its external ſurface. The internal ſurface of the lungs is computed by anatomiſts to be equal in extent to the circuminvolving ſkin of the whole body. It is well known that breathing,

or reſpiration, vitiates the ſurrounding air, and renders it unfit for the preſervation of animal life.

The living body at reſt, or pent, or ſhut up in a room, ſooner or later, vitiates the air of the place or apartment it is in: the leſs it moves in that ſpace, the ſooner it begins to inhale an air contaminated with its own effluvia, and vitiated by its own reſpiration.

A number of people in one room or place, encloſed on all ſides, like ſo many fiſh immerged in water, breathe one and the ſame fluid, continually vitiating by their reſpiration and perſpiration. This fluid becomes inſalubrious and intollerable, in proportion to the number of the people, the ſmallneſs of the room, and its want of free ventilation, by doors, windows, chimnies, &c.

We need not carry this reaſoning, ſo obvious to every reader, any farther, to convince them of the neceſſity of motion, change of place, or walking, riding, or other exerciſe, ſo neceſſary and conducive to their health and exiſtence; and, from ſimilar reaſoning, they may form ſome judgment of the purity, ſalubrity, and free circulation of air, in the apartments they ſleep and moſtly live in; and of the filthy, impure, unhealthy ſituation of all crowded, confined, unventilated places.

In cities and great towns the air of houſes and apartments are often further vitiated by privies, ſhores, or drains, the putrid ſtench of ſlaughter-houſes,

houſes, and many noxious trades and manufactories.

At ſea the foul air, compoſed of the breath and perſpirable matter of crowded ſhips, is rendered ſtill more unfit for perſpiration, by the confined, moiſt, putrid exhilations from the bilge water and contents of the ſhip's hold, grealy deficient of the ſanative qualities of land air, repleniſhed by vegetation, and other ſources of reſtoration of its vital principle.

Dr. Wilſon, in his obſervations on the influence of climate, judiciouſly remarks, that among the diſcharges or excretions from the body, that by the *lungs* ſeems leaſt attended to, and hath been frequently conſidered of little importance as an evacuation.

Dr. Keill and Dr. Hales found that a man in twenty-four hours loſt, by perſpiration, thirty-one ounces *, ſix of which ounces went off by expiration. A ſmall increaſe or diminution of this diſcharge muſt be attended with evident conſequences; and, although the diminution of one excretion generally increaſes another, without much inconvenience or uneaſineſs to the body; yet we apprehend that the excretion from the lungs cannot, in a very great degree, be diverted into another channel.

* Sanctorius computes it to be fifty-two ounces in Italy.

Air

Air is the medium by which the lungs are enabled to make their diſcharge; but air is capable of receiving only a certain impregnation, and of carrying off but a certain quantity of moiſture and putrid affluvium, which quantity depends on the ſtate of its impregnation at the time it is inſpired. When it is extremely dry and well dephlogiſticated it will carry off a great charge from the lungs; but, when it is highly impregnated, it will carry off very little, and, if ſaturated, it will not free the lungs at all.

Suffocation is immediately the conſequence of reſpiring air, ſaturated with the phlogiſtic principle; its effects are exactly the ſame with a total want of air, as in both caſes the lungs get no relief by any diſcharge.

Dr. Crawford, by his ingenious publication on *animal heat*, has ſhewn that the diſcharge of the phlogiſton, by the lungs, is neceſſary to the ſupport of that heat; as this principle is received by the atmoſpherical air taken into the lungs at each inſpiration from which it precipitates; and the ſyſtem imbibes a certain quantity of heat; and the ſame air, which has been deprived of its heat, goes off by expiration, charged with phlogiſton extricated from the animal ſyſtem.

That the fixed air produced in reſpiration depends on the change which the atmoſpherical air undergoes

undergoes in the lungs, is, the doctor thinks, evident from the following facts.

Air is altered in its properties by phlogiſtic proceſſes; and, though many of theſe proceſſes are totally different from each other, yet the change produced in the air is, in all caſes, very nearly the ſame.

It is diminiſhed in its bulk; it is rendered incapable of maintaining fleam, and of ſupporting animal life; and, if we except a very few inſtances where the fixed air is abſorbed, it univerſally occaſions a precipitation in lime water. We have, therefore, reaſon to believe, that there is no inſtance of phlogiſtic proceſſes in nature which is not accompanied with the production of fixed air.

The power of vegetables to abſorb phlogiſton, is too well known to be here inſiſted on; therefore, by their abſorbing this principle from the fixed air diſcharged from the lungs, it is again fitted for the purpoſes of animal life.

Conſequently, as phlogiſton, by whatever proceſs extricated, renders air noxious to animals, and makes it ſalutary to vegetables, we infer, that it is this principle, contained in natural rains, which ſo much increaſes the growth of plants.

* Dr. Wilſon obſerves that the productions of

* Dr. Alexander Wilſon's Obſervations relative to the Influence of Climate on Vegetable and Animal bodies.

the

the vegetable kingdom depend on thoſe of the animal, as the latter cannot exiſt beyond due proportion to the general ſtate of the former; and, as the body of every animal firſt exiſted in a vegetable form, from which it has been changed by the proceſs of anamalization once or oftener, it ſeems naturally to follow, that the ſtate of animal bodies muſt be influenced by the qualities of their nouriſhment; and, as the qualities of that nouriſhment depend on aliment, climate, and the condition of the animal, muſt not only be effected by the ſame cauſe, through its food, but alſo by the immediate action of theſe cauſes, which ſo mueh influence the health and growth of vegetables.

Vegetables, as food, may be conſidered under two heads or claſſes; and theſe claſſes we ſhall diſtinguiſh by their general properties. In the firſt we ſhall include all vegetables which are capable of the vinous and acetous fermentations, or of the acetous only, without the vinous. In the ſecond we ſhall comprehend ſuch vegetables as emit an alcaline vapour firſt, and then run more or leſs into an acid ſtate, before putrefaction takes place, or into putrefaction, without any previous diſcoverable degree of aceſcency.

We ſhall next divide animal ſubſtances into three claſſes, by the names of half *animal food*, ſimple animal food, and compound animal food. By the firſt is meant that which is between vegetable

table and animal, yet partakes of the nature of both without being either; ſuch is the milk of herbaceous animals.

By the ſecond is meant the fleſh of thoſe animals which feed on vegetables, ſuch as cattle, ſheep, &c.

The third comprehends thoſe which are carnivorous, whether biped, quadruped, fiſh, fowl, or reptile.

A diet of vegetables, entirely of the firſt claſs, is the moſt difficult of any to digeſt and aſſimilate, not only from their texture, but being furtheſt removed from the nature of animal matter, by having one at leaſt, if not both of the fermentations to undergo, previous to putrefaction ſtill unperformed. From theſe cauſes they are retained long in the ſtomach and inteſtines before they yield their nutriment to the lacteal veſſels. The chyle from them is thin and watery, and much leſs corroborating in hot than temperate climates.

Thoſe who live wholly on vegetables, even aſſiſted with a cold climate and exerciſe, are, generally ſpeaking, ſhort lived, and, in the decline of life, fall off much faſter than others who have uſed a proper quantity of animal food; which is an obſervation made by Sir John Pringle.

The ſame obſervation holds good in a ſtill higher degree in warm climates; they co-operate with

with ſuch food, in relaxing and debilitating the body, the juices of which muſt, under theſe circumſtances, be poor and thin.

By our diviſion of aliments, of the ſecond claſs, is comprehended thoſe plants generally ſtiled alcaleſcent and aromatic; as onions, muſtard, horſe-radiſh, &c. Theſe vegetables may have their alkaline acrimony diſſipated by coction; but even in this ſtate, they become putrid much ſooner than vegetables of the aceſcent kind.

They are, however, totally incapable of ſupporting the human body, as the nutriment they yield is very trifling. Their principal utility conſiſts in promoting the digeſtion of other vegetables in the ſtomach, when uſed with them. Their ſtimulating powers, when raw, aſſiſt digeſtion; and hence the aromatic and alkaleſcent plants are much uſed in this ſtate, by theſe who live principally on vegetable food, particularly in warm climates.

They act in ſome degree like animal ſubſtance, by abſorbing the acidity from vegetables of the firſt claſs, which accelerates their diſſolution. From Sir John Pringle's experiments, the ſaliva, mixed with vegetable aliments, prevent effervеſcence, even out of the body, although the vegetable matters, notwithſtanding, go through the different ſtages; therefore it is, that in healthful bodies, nouriſhed with a due proportion of animal food,

food, the ſaliva and ſtomach juices prevent eructations; but, when animal matter is wanting, the alkaleſcent plants are in the ſame way uſeful.

In weak ſtomachs and poor thin habits eructations, from a want of ſuch correctors, are common: this effect is produced by a mixture of every kind of animal matter with vegetable food; and, the more animalized the matter is, the more powerfully will it act in diminiſhing efferveſcence, by abſorbing the acid as ſoon as formed; and, in the ſame manner do the alkaleſcent plants act when boiled, by becoming putrid ſooner than thoſe of the aceſcent kind.

Animal ſubſtances as food: and to begin firſt with half animal food; as the milk of herbaceous animals, which we conſider as the chyle ſecreted from the blood, with this difference, that, when in the ſtate of milk, it is more animalized than when in the lacteal veſſels, as it hath undergone an intimate mixture with the blood, previous to its ſecretion, by which its aſſimilation, when taken as food, will be more eaſy than if uſed for the ſame purpoſe when in a ſtate of the chyle.

For theſe reaſons it becomes a good, quick, and eaſy digeſted nutriment, without the difficult and tedious extraction of the chyle, which retards the digeſtion of vegetable food, though it ſtill retains theſe aceſcent qualities which give vegetables the power of correcting putrefaction.

It

It has been already ſeen what proceſs vegetables go through in the courſe of their digeſtion and aſſimilation, from which, the cauſe of their ſlow converſion into animal ſubſtance is readily underſtood. It now remains to ſhew wherein the difference between the digeſtion and aſſimilation of *ſimple animal food* and vegetable matters conſiſt.

Animal ſubſtances, from having undergone the two firſt fermentations, are as far advanced in aſſimilation, when broken down and macerated in the ſtomach, as the chyle from vegetables of the firſt claſs is, when mixed with the blood, after having undergone the diſcharge of its acid.

From this advanced ſtate of animal matter, its aſſimilation is eaſy, and, from its texture and ſolubility, its digeſtion is alſo accompliſhed with little difficulty.

Animal ſubſtances, for theſe reaſons, affect very different from vegetables; the latter are anti-ſceptic in proportion to the acid they produce, while the former, being paſt that ſtate, are no longer correctors of putrefaction; but, in animal heat, run directly into it with conſiderable rapidity, unleſs that tendency is counteracted.

It is evident that animal food is more ſtrengthening than vegetable, as it is made up of the nutritious parts of vegetables only, concentrated and prepared for eaſy union with living bodies.

Animal ſubſtance, as a conſtant food, is ill fitted

fitted to the human frame; a continued uſe of it without vegetables, muſt ſoon end in putrefaction, as the only correctors of its tendency then left are *motion* and *air*; the effects of which laſt, as a corrector of putrefaction in living animal bodies, we ſhall hereafter ſhew to be greater or leſs according to climate.

Animal ſubſtance, by being the moſt ſtrengthening food, becomes its own corrector, by increaſing the ſtrength of the ſolids, and conſequently quickening the motion of the fluids. This to a certain degree is ſalutary; but if carried further, putreſcency brings on relaxation, diſeaſe, and death.

The circulation of blood in herbaceous and granivorous animals is moderate, and often languid: their tempers are docile, mild, and timid. In carnivorous animals, circulation is quick, and their tempers are often violent and fierce, unleſs when thoſe effects of food are counteracted by climates either very hot or exceedingly cold, as we ſhall hereafter mention more fully.

The digeſtion of *compound animal food* is eaſy and quick. Such animals as live on food of this ſort have exceeding little action of ſtomach.

Fiſh are the common food of fiſh, and their diſſolution is eaſily accompliſhed by the juices of the ſtomach, which ſeem to act as a menſtruum.

The facility of digeſtion and abundant nutri-

ment which this kind of food affords, is generally conſidered as the ſource of that high health, and thoſe numerous families among the inhabitants of the ſea-coaſt.

Vipers ſwallow their food whole, which are animals, and many of them in ſome degree carnivorous; ſuch as rats, mice, lizards, &c. thoſe reſt in the body until ſoftened, and melted down by the heat and animal juices. From the nature of their feeding, and this manner of digeſtion, they ſtand high in the rank of compound animal food. This ſpecies of animal ſubſtance is therefore of quick and eaſy digeſtion, and the nutriment from it not only very great, but of ready aſſimilation.

Common ſnakes which feed on herbage poſſeſs none of thoſe qualities in any higher degree than ſimple animal ſubſtance.

In caſes where much nutriment is wanted in a ſmall volume, and eaſily digeſtible ſtate, fiſh and vipers are moſt proper. The milk of carnivorous animals, which is very near the ſtate of compound animal food, might be found proper alſo for this purpoſe.

All the conſequences will follow a diet of this kind, in promoting the general tendency to putrefaction, which has been mentioned as the effect of ſimple animal food, only in a higher degree, and ſhorter time, if taken in the ſame climate in equal quantities, without proper correctors.

The

The rapid progreſs to putrefaction in highly animalized bodies, ariſes from a more perfect extinction of all the antiſeptic qualities of vegetables, which went to form the original body; and the farther they are removed from that ſtate, the more quickly do they become ſoft and putrid, and conſequently the more eaſily are the lean parts brought into a digeſtible ſtate.

The oily parts of all animals are moſt difficult of digeſtion, and thoſe of the moſt animalized are the moſt ſo, from their great want of acid: therefore, when fiſh and vipers are directed for weak habits, the lean only ſhould be uſed.

With ſuch food acids are highly proper, and hence the greater propriety of uſing much buttermilk where fiſh is the common food *.

The fleſh of herbaceous animals, ſuch as cattle, ſheep, &c. reſiſts putrefaction under equal circumſtances of heat and moiſture, longer than the fleſh of dogs who have been nouriſhed with animal food. It is well known, that the fleſh of carrion-crows, ſea-fowls, and fiſh of all kinds, will become putrid ſooner than either of the above animals.

Mr. Reaumur has obſerved, that unimpregnated eggs reſiſt putrefaction much longer than impregnated ones: the cauſe of this difference ariſes from the ſemen of the male being a highly animalized matter, and therefore runs ſooner into

* The peaſantry and labouring people of Holland do this.

putrefaction, and acts as a ferment, which induces the ſame through the reſt of the egg.

Dr. Wilſon obſerves, that with reſpect to *vegetable food in hot climates*, exercife, and the vegetable correctors of the ſecond claſs, which, as hath been already obſerved, act in ſome degree like animal food, and will keep the body tolerably ſtout in warm climates, as the atmoſphere in thoſe climates is more charged with phlogiſton than the air of more northern latitudes.

It is therefore leſs capable of promoting a copious diſcharge by the lungs, but perſpiration is increaſed to make up for this deficiency: yet notwithſtanding the quantity of this diſcharge by the ſkin, that very warmth which promotes it, gives the whole body a ſtrong tendency to putrefaction, which corrects the effect of vegetable food, by rendering the animal juices more capable of abſorbing the ſuperabundant acid.

The digeſtion of a continued vegetable diet is by that tendency much promoted; yet in warm climates, where animal food is totally wanting, a continued vegetable diet will relax the body ſo much, that putrefaction frequently follows from a weak and languid circulation*.

In ſuch caſes the ſmalleſt wound becomes a ſore, and a thin, ſharp, acrid, and putrid humour

* Expoſed to heat and moiſture.

gleets

gleets continually from the mouths of the relaxed veſſels; tumors are formed by the ſtagnating fluids, which break and become ulcers; and this continued drain prolongs the life, by diſcharging the putreſcent matter, which would otherwiſe accumulate.

This condition of the body from relaxation only, has, we ſuppoſe, given riſe to the idea of a *vegetable ſcurvy*, which implies a kind of contradiction: but give it what name we will, it is a general putreſcent ſtate of the body, though ariſing from cauſes exceedingly oppoſite to that of the true ſcurvy.

A Negro who had been afflicted for ſeveral months with ulcers of the above kind, and exceedingly emaciated, was carried into a plantain-walk, or public garden of the plantation, that he might be abundantly ſupplied with vegetable food, and live at his eaſe, which ſeemed the only means of preſerving his life: this had not the deſired effect; for when we ſaw him, he had been there near two months, and became worſe than when brought to it. He was now removed from this place, and provided with ſalt beef and ſalt fiſh, of which, when boiled, he eat three times a day, and was made to move about, and to increaſe his exerciſe daily, as his ſtrength would permit.

We muſt here obſerve, that a putrid tendency from the above cauſes is productive of the ſame

dull inactive ſtupor, which are the conſequences of the true ſcurvy; yet ſo oppoſite is it to that diſeaſe, that thoſe affected with it, have a ſtrong propenſity to animal food and abſorbent earths*, which they eat with great avidity, from an inſtinctive knowledge that theſe will correct the aceſcent ſtate of their fluids.

This patient's ulcers were every day bathed with a ſtrong decoction of bark, to which a little rum was added; after this they received no other dreſſing than ſome powdered bark ſprinkled on them. In ten days a viſible alteration appeared in his ſtrength and ſpirits; his ulcers after this began to look better; in ſix or ſeven weeks they were quite filled up; and in leſs than three months were perfectly well, and the Negro ſound and fit for eaſy work. After the firſt three weeks his deſire for animal food diminiſhed greatly, and as he got ſtrength, he returned to his former appetite.

We have mentioned this inſtance, as it was particularly attended to, though all the attempts we have ſeen made in ſimilar caſes, predicted an iſſue equally favourable; but the want of attention in thoſe climates often fruſtrates cures which require ſo much time and care.

It is very common in the Sugar Iſlands, when a Negro falls into this habit, and is much reduced,

* See dirt-eaters, under the head Negroes.

to

to ſend him on board ſome ſmall coaſting-veſſel, where he generally gets well by being obliged to move about, and having an abundant ſupply of beef, fiſh, and other animal food.

Animal food in hot climates is productive of the oppoſite effects, as Dr. Wilſon very juſtly obſerves; the heat and ſtate of the atmoſphere cooperate to promote and quicken the diſſolution of ſuch food, which, by its abundant nouriſhment, and ſpeedy animalization, counteracts the relaxing tendency of the climate, and gives ſtrength to the whole frame.

Such condition of body is certainly the moſt deſirable, were it not the moſt dangerous; under ſuch circumſtances of food, the whole body is in a high animalized ſtate, and conſequently, in ſuch climates, under a ſtrong tendency to putrefaction.

When obſtructions happen, which prevent the excretions in their due proportions, the body ſoon acquires from its animalized condition, a putreſcent tendency that is ſpeedily increaſed by the heat, and the impregnated ſtate of the atmoſphere, which we have already ſhown renders it unable to abſorbe a due proportion of phlogiſton from the lungs.

Dr. Milman makes the following remarks on the means employed by Dr. Lind, in the cure of the ſcurvy:

All the means of cure which have been enu-

merated, ſays Dr. Milman, may be reduced to the following heads: to the *nutrientia*, *ſudorifica*, *ſtimulantia*, and the *tonica*.

The firſt of theſe act upon the ſimple ſolid, by repairing the neceſſary and daily waſte of the machine, which could not be replaced by an indigeſtible diet or inſufficient food: nouriſhment reſtores that ſtate to the fibre, which is requiſite to the due action of the vital power. By giving that degree of plethora which is neceſſary to promote the various ſecretions and excretions of the body, it prevents that principle from being weakened by the retention of impure matters; the evacuation of which leaves it in a condition capable of properly exerciſing its functions.

This is the manner in which I conceive the freſh-boiled beef and greens of Haſlar hoſpital, and freſh fleſh-broths, have rendered the benefit which has been obſerved to follow ſometimes their ſeparate, and at others their joint uſe.

The acid juices of fruits, of the lemons and the oranges, are great promoters of perſpiration and urine. Their virtues in the cure of this diſeaſe were improved by dilution with water-gruel, which cannot be well conceived to operate otherwiſe, than by giving that fulneſs to the veſſels which might render the effect of the acids, as ſudorifics and diuretics, more certain.

But when the diſeaſe was a good deal advanced,

and

and great weakneſs had taken place, a pint of rich Malaga wine, joined with four ounces of theſe acid juices, by its ſtimulant cordial properties, added great efficacy to theſe, which was ſtill further increaſed by the addition of a quantity of ſugar, ſo as to occaſion a ſort of effervescence at the times of taking this mixture.

That the wine and the active ſpirit diſcharged by this effervescence, are uſeful by their cordial and ſtimulant qualities, and by concurring with the acids in gently promoting the proper excretions of the ſkin and kidnies, ſeems evident from the happy preſage always drawn in this diſeaſe, when the ſkin, from having been dry, becomes ſoft and moiſt.

Dr. Lind moreover informs us, that the effects of this cordial mixture actually were ſudorific and diuretic. This view of the ſubject affords us ſome means of accounting for the beneficial effects aſcribed to the mineral waters in the ſcurvy; in conſequence of the conſiderable quantity of fixed air they contain, they are ſtimulant and diuretic.

*Dr. Caleb Dickinſon obſerves, that the cauſes inducing ſcurvy, and other putrid diſeaſes, operate upon the ſolids in weakening the vital principle. Every circumſtance corroborates this idea: it gives the moſt ſatisfactory explanation of the ſymptoms;

* Dr. Caleb Dickinſon's Enquiry into Fevers, and Obſervations on the Exiſtence of Putrefaction in the living Body.

and

and as the degree of debility increaſes, ſo the different phenomena characterizing the different ſtages of the diſeaſe enſue; and, as he ſays, to uſe Dr. Milman's expreſſion, *the very eſſence of ſcurvy is weakneſs.*

He urges, that the remedies and means uſed to reſiſt putrid diſeaſes, are thoſe that tend to invigorate the body, ſuch as a nouriſhing diet, the moderate uſe of wine, proper exerciſe, with the article of cleanlineſs. And remarks from Dr. Lind, that when wine was leſs drank in Holland, the ſcurvy was more frequent; and among the firſt cures recommended to the world, was *worm-wood infuſed in wine*, and this was afterwards uſed in Saxony as a preventative, where this diſeaſe occurred very often.

Dr. Lind, in his Health of Seamen, recommends bitters (as a preventative of putrefactive and malignant diſeaſes) compoſed of a gallon of *ſpirits*, eight ounces of *bark*, and four ounces of *dried orange peel.*

As theſe are medicines of a tonic, corroborant, antiſeptic quality, they no doubt ſtrengthen the ſtomach, and invigorate the habit; and as Dr. Lind is of opinion, that whatever tends to impair the conſtitution, eſpecially the digeſtive organs, operate ſufficiently without any other cauſe, to introduce the ſcurvy, in a mild or in a malignant degree; the wine and ſpirit bitters mentioned are both

both good preventatives at ſea, and in other ſituations in which ſeamen, ſoldiers, and others, are expoſed to this diſeaſe.

The frequent uſe of theſe bitters taken on an empty ſtomach, by ſtrengthening the digeſtive organs, and enabling them to elaborate the viſcid groſs aliment commonly uſed at ſea, may ſubdue one cauſe of ſcurvy, *defective nouriſhment*; and by their tonic ſtimulant qualities, in ſome degree, fortify the ſyſtem againſt another cauſe of ſcurvy, *humidity*.

Due attention ſhould be paid to the foregoing inveſtigations, the combined reſult of judicious theories, improved by an extenſive experience of men of the firſt abilities, and greateſt opportunities; who all concur in the advantages of *regimen*, as a preventative and reſtorative, over the beſt medicines that have been hitherto exhibited in this diſeaſe; drawn from a ſub-aſtringent, aceſcent, invigorating combination of vegetable and animal food, duly proportioned to the exigencies of the caſe.

Exemplified in the officers of the navy and army, who are ſo much better clothed, lodged, and dieted, than the common ſailors and ſoldiers, which from the nature of ſituation, muſt ever be the caſe. Therefore, it is not in ſuch regimen alone that we are to look for a remedy in this diſeaſe, applicable to all ranks; but it is to medicine principally

principally we are to reſort, as the primary reſource for the moſt ſanative and leaſt expenſive *bracer* of the animal fibres, compoſing the relaxed ſolids of the debilitated ſcorbutic. Equally fit to *correct* the broken down craſis of the blood, and that may check the too abundant degeneracy of the animal proceſs, and ſtrengthen and enable the digeſtive organs to ſubdue the viſcid chyle, and aſſimilate a due proportion of nouriſhment for all the purpoſes of a healthy exiſtence; with ſuch food, and under ſuch untoward circumſtances as the life of a ſailor is uſually expoſed to.

Every medicine that in a conſiderable degree anſwers thoſe ſalutary purpoſes deſerves at leaſt a liberal and fair trial, and ſhould be received and brought into general practice, in proportion to its ſafety and efficacy. Every man, whether medical or not, muſt ſee the expediency of ſupporting its introduction into the navy and army, and protecting its progreſs into general uſe, until its merits have eſtabliſhed it in practice beyond the reach of ill-founded prejudice, and the lighter, but not leſs dangerous attacks of ridicule. We have well-grounded reaſons for thus prefacing the introduction of our

ANTISCORBUTIC MEDICINES;

The mode of ſucceſsfully exhibiting which are as follows; eſpecially when the general method of cure cannot

cannot be complied with, by the aſſiſtance of the moſt deſirable regimen.

IN order to render our method of treating ſcorbutics as ſimple as we poſſibly can, we ſhall divide the ſymptoms that uſually accompany the commencement and advance of this loathſome diſeaſe, into three ſtages; in each of which ſhall be given our method of ſtopping its progreſs, and effecting a cure.

Apprehending from what we have already ſaid on the ſubject, that the generality of our readers will be able to collect the means of preventing this diſeaſe, as far as they have it in their power to exert ſuch means; and to guard againſt the influence of climate, and the local diſadvantages unavoidably ariſing out of ſituation: together with what may be further collected from what ſhall follow for the preventing a relapſe of the patient, after a cure has been effected.

The *prevention* of the ſcurvy, like all other diſeaſes, muſt always conſiſt either in removing the cauſes which produce them, or when this cannot be effected in counteracting their influence. The ſcurvy is produced by ſo many and various cauſes, that it has hitherto baffled the efforts of phyſicians and philoſophers; particularly in long voyages, under the unfavourable circumſtances unavoidably attending them; ſome of which have been enumerated,

merated, and they are all ſo well known, that it is needleſs to dwell on them, particularly as our medicines are intended to obviate, or counteract many of thoſe cauſes.

Dr. Lind, Dr. Rouppe, and others, have been very accurate in their deſcription of the ſymptoms of this diſeaſe; but at the ſame time ſo copious, that the bounds preſcribed to our work, would determine us rather to prefer the conciſe manner obſerved by Dr. Thompſon, did it fully anſwer our preſent purpoſe; our work being calculated for the uſe of all who go abroad, whether medical men or not, we are under the neceſſity of deſcending to particulars; therefore ſhall proceed as follows:

I*. Moſt writers on the ſubject agree, that the firſt ſymptoms of the ſcurvy are uncommon ſlothfulneſs, and averſion to all kinds of labour, attended with a deſire of ſitting or lying, eſpecially in any obſcure corner. This gradually increaſes, and is ſoon converted into ſpontaneous laſſitude, and heavineſs of the limbs; ſo that the men are fatigued and out of breath with the leaſt motion. If the diſorder gains ground, and they ſtrive to keep themſelves in motion, beſides the laſſitude they feel heavy pains all over, as if they had been greatly fatigued. At length having loſt

* Dr. Lewis Rouppe.

all

all deſire of moving, they ſoon loſe the power of motion by the pains that they feel, and then find ſuch a difficulty in breathing, that they ſeem to be ſuffocated.

Another ſymptom among the firſt is, when, after having been full and heavy, they become fearful and timorous; they are then ſoon taken ill of the ſcurvy, in which ſtate they are ſtruck with terror from the ſmalleſt incident; nor can they be convinced that they are ſecure, and are not to be inſpired with any degree of confidence.

If the diſorder increaſes they loſe all hopes of recovery, and cry on the moſt trifling occaſion, although they were brave fellows before this diſorder; after this they become almoſt inſenſible, and as if their ſpirits were broken by long continuance of misfortunes, and bear injuries tamely without murmuring.

The countenance becomes pale, ſallow, and bloated: though the colour of the face is changed, it is not to that paleneſs which people have after fevers and ſevere illneſs; nor is it ſuch a colour as people of weak conſtitutions have, but there is ſomething in ſcorbutic patients of a robuſt appearance, though without redneſs; nor is the face emaciated, but ſeems to have a mixture of yellow and blue colour joined to paleneſs.

The ſame colour is obſervable in the whites of the eyes, and the red veſſels in them diſappear.

The

The carunculæ lachrymales turns pale, as well as the lips, which grow of a ſub-livid colour. Thoſe who in health had any colour, ſtill retain it in part, but mixed with a yellow and bluiſh colour. The veſſels which before were full of red blood ſeem livid, as is often the caſe with ſome people in very cold weather.

The more this diſorder gains ground, the more this yellowneſs of the face is obſervable; and if it proceeds to its laſt ſtage, the colour of the face, from being yellow and bluiſh, becomes inclinable to green.

Scorbutic people have their belly ſomewhat ſwelled at the beginning of this diſeaſe, and find a tightneſs there without any pain: at leaſt none complain of any, excepting a troubleſome ſenſation in the epigraſtic region, which they ſay felt as if bound with a fillet; they are uſually coſtive. As the diſorder increaſes the face ſwells, particularly the lower eyelids; the legs grow œdematous, and the patients dropſical.

The ſwelling of the legs of many is firſt obſerved at their ancles towards evening, and hardly to be perceived next morning; but after continuing a ſhort time in this manner, gradually advances up the leg, the whole of which becomes œdematous.

The firſt pathognomonic, or inſeparable ſymptom of this diſeaſe, is the gooſe-ſkin, which has the

the following appearance:—In the beginning of the ſcurvy ſmall tubercles appear on the ſkin, like thoſe which ſhow themſelves when the naked body is expoſed to the cold. But it muſt be obſerved that the epidermis, or ſcarf-ſkin, in this ſtate, protuberates more than uſual; that it does the ſame in the parts which are covered and warm; and though the tubercles are greater, and riſe higher, they are not yet ſo numerous as when ariſing from expoſure to the cold: ſome of theſe form a large baſis, and end in a point. At the top of theſe tubercles there is a yellow and ſomewhat red point, like a bladder, which in a few days grows red, when the point appears better.

The colour daily increaſes and gets darker; the tubercle by degrees is depreſſed, and grows flatter, until at laſt it is quite ſmooth, and then there remains only a ſmall purple ſpot: this generally happens at the latter end of the firſt, or the beginning of the ſecond ſtage; but the longer they remain the darker they grow, till at laſt they are quite livid, which generally takes place about the middle ſtage of the ſcurvy.

Theſe ſpots are ſomewhat roundiſh, about the ſize of a lentil, and are generally obſervable about the knees, and the inner parts of the legs and thighs, but are not ſo frequently ſeen in the other parts of the body.

If the ſpots remain any time, the ſcarf-ſkin which covers them falls off naturally in ſcales, or the cuticle is abraded by ſcratching it, and then they diſappear, but others ſucceed them very ſoon, and generally continue to the end of the ſecond ſtage, when they finally diſappear; nor do they terminate in ſuppuration, and are but ſeldom obſerved in the third ſtage.

The gooſe-ſkin appears ſometimes ten or twenty days before the gums are affected, ſo that if the tubercles riſe, and the tops of them are red, it may be always foretold that the gums will ſoon be affected.

In the beginning of this diſorder the ſkin is dry and rough; in the middle dry, rough, and ſcaly; but at the end, when the dropſy comes on, the hair uſually drops off.

The ſubſequent pathognomonic ſymptom is the ulceration in the gums. About the end of the firſt ſtage the gums begin to itch, to ſwell, and grow red; and if they remain in this ſtate for ſome days, they contract ſmall ulcers, particularly in the edges, are very painful, and ſeparate from the teeth. The more the diſeaſe gains ground, the more they ſwell, and the gums ſeparate from the teeth, by which they begin to looſen, and are ſoon ſo looſe that they can be eaſily pulled out, or fall out of themſelves.

When

When they are in this ſtate the gums ſwell very much, and bleed upon the leaſt touch. Beſides this, on the internal part which is next to the teeth, fungous fleſh ſprouts up, which ſometimes riſes above the edge of the teeth.

The part of the gums which are between the teeth ſwell, and, on account of the preſſure of the teeth, grow gangrened, and putrefy; the ſame happens if they grow too much above the teeth: then alſo the gums eaſily bleed, and ooze out a black clotted blood, which ſticks between the teeth and the gums, but may be ſoon removed with the fingers.

But if it putrefies in the mouth, it not only gives a moſt fœtid ſmell, but likewiſe makes the ulcers larger, which by degrees deſtroys the gums, and produces a gangrene and *caries* in the adjacent parts; but this ſeldom happens unleſs in the laſt ſtage of this diſorder. From what has been ſaid, it appears, that the three periods of the ſcurvy may be eaſily diſtinguiſhed, ſince there is ſcarcely an inſtance of a man having that diſorder, without having thoſe ſymptoms likewiſe, and therefore they may be conſidered as the true and certain ſigns of it.

There are two things which we have had in view throughout this work; the one is the preſervation of the *bile* in a ſound natural ſtate. The bile is a medicine of Nature's own formation,

elaborated within the ſyſtem it is deſtined to preſerve; for the ſecretion of which ſhe has provided a large apparatus, and the diurnal formation of that fluid is proportionably large.

That celebrated anatomiſt CHESELDEN* obſerves, as the liver, from its ſituation in the ſame cavity with the ſtomach, will be moſt preſſed, and conſequently ſeparate moſt gall when the ſtomach is fulleſt, which is the time when it is moſt wanted; ſo the gall-bladder, being ſeated againſt the duodenum, it will have its fluid preſſed out by the aliment paſſing through that gut, and conſequently at a right time, and in due proportion; becauſe the greater the quantity of aliment is, the greater will be the compreſſion; and ſo the contrary.

This great anatomiſt knew no way of computing with any exactneſs the quantity of *bile* that is uſually ſecreted by the liver, in a given time; but if it were four times as much as all the ſalival glands ſecrete, it may be twenty-four ounces for every meal: to which being added ſix ounces of ſaliva, which, he thinks a moderate computation; and ſuppoſing the pancreas in the ſame time ſecretes three ounces, there will then be thirty-three ounces of fluids ſeparated for the digeſtion of one meal; and that theſe neceſſary fluids may not be waſted in ſuch quantities, a great part of them

* Cheſelden's Anatomy.

paſs

paſs into the blood with the chyle, and may be ſoon ſeparated for the ſame uſe; and very likely ſome of the ſame bile may be employed more than once for digeſting part of the ſame meal: and as the liver exceeds all the glands in the body in magnitude, and its excretory ducts ending in the duodenum, it ſeems to me to be much more capable of making thoſe large ſecretions from the blood, which are produced by cathartics, than the ſcarce viſible glands of the inteſtines.

The other thing that I have had in view, is the ſalutary and extenſive uſe that ſhould be made of acids; a ſubject that has been ſo well handled by Dr. Far, that I thought I could not do better than make the extracts I have done from that gentleman's treatiſe on the ſubject. To impreſs what we have written upon thoſe two intereſting points, the *bile* and *acids*, the counter-balancers of each other, was our motive for reiterating them here.

We apprehend our medicines will be found a corrector and preſerver of the one, and an uſeful ſubſtitute for the other, with reſpect to its tonic, ſtimulant, antiſeptic qualities, and to its ſedative, but not its cooling qualities, nor as an immediate extinguiſher of thirſt, &c. but in a more indirect manner.

We have touched on the univerſality of acids in the introduction; and under the head acids we have ſhown, that the aſtringent principle in vege-

tables is an acid, and exemplified it, by giving the proceſs to obtain it from galls, p. 211.

The *curative* indications in the ſcurvy will be to reſtore the ſecretions and excretions, on which the health and vigour of the animal ſyſtem depends; or, in other words, to ſet open thoſe emuctories or out-lets provided by Nature for the diſcharge of the degenerate matter thrown off, or prepared to be thrown off, by the circulating fluids as ſuperfluous; not becauſe this redundant accretion of matter is merely inert, but from being ſo highly animalized, as to become acrid and unfit for the further preſervation of the animal ſyſtem. This is to be attempted by bracing, invigorating, and giving a due elaſtic tone to the animal fibres, compoſing the veſſels through which theſe fluids circulate, for the maintenance of animal exiſtence, commonly comprehended under the word ſolids.

Theſe fluids ſhould be the product of a well elaborated chyle, compoſed of, or impregnated with, ſuch materials as are endowed with a power to reciprocally ſtimulate and excite ſuch elaſticity in the animal fibre, as promotes the natural ſecretions and excretions, and enables the circulating fluids to repair the waſte of the motion, and attrition of the parts.

To accompliſh this, the firſt paſſages muſt be cleared; the deſcent of the tainted ſaliva of a corrupted mouth and gums, into the ſtomach, as much

as

as poſſible prevented, or counteracted, by correcting its morbid qualities with acids and other aſtringents, at once to combat its influence there, and ſtrengthen and ſtimulate the ſtomach and inteſtines, to perform with vigour their reſpective offices, and give energy to the digeſtive organs, effectually to elaborate the firſt and laſt concoctions.

By theſe and other invigorating means to rouſe the languid circulation of the ſcorbutic patient; in both which intentions, deobſtruents ſhould be occaſionally called in as auxiliary helps, to render the glands and capillary ducts pervious to the circulating fluids.

By cleanſing, correcting, or renewing the air they breathe in, if loaded with accumulating putreſcence, by ſteams of vinegar and ventilation alternately; or if phlogiſticated by the reſpiration of a number of people impacted together, reſort to the ſame or ſimilar means of correcting it.

When vinegar is not procurable the burning of aſtringent gum reſins, or the woods of thoſe trees which produce them (eaſy to be procured in warm latitudes); which, from emitting an acid principle, and volatile alkali during rapid combuſtion, produce the next ſalutary impregnation for correcting ſuch foul air, and which is alſo to be alternated with ventilation, by conducting the

atmoſpheric air into every receſs occupied by the foul, or the foul impregnated air.

As for the burning of ſulphur, and other ſubſtances that are antiſeptic from their phlogiſton, or phlogiſton and volatile vitriolic acid, they can only be performed in the abſence of the people, or while they are on deck, as they do not afford, but injure a reſpirable air. The greater the quantity of gunpowder mixed with the burning ſulphur (conſiſtent with ſafety), the more beneficial will be this kind of fumigation.

The ſteams of vinegar, and the ſteams and air ariſing from fermenting vinegar, in the proceſs of ſouring by artificial heat, may be copiouſly inhaled with ſafety. The air extricated in the vinous fermentation, copiouſly inhaled, is inſtant death, being ſimilar to that vitiated by combuſtion and reſpiration. The ſalubrity of the former is experienced every day by the workmen employed in the preparing vinegar by artificial heat, who are obliged to ſtrip their bodies naked when they go into the ſtove-chambers, or rooms where the vinegar is ſouring, the vapour is ſo hot and copious; in which they frequently remain above an hour, without any danger to reſpiration, notwithſtanding the heat and moiſture of their ſituation.*

This is the more extraordinary, as there is a great deal of moiſture as well as phlogiſton diſcharged

charged each expiration from the lungs, which renders dry air the more neceſſary to reſpiration.

That the lungs ſhould be an organ peculiarly affected in the ſcurvy is eaſy to conceive, when we conſider that, from the appearance of either the gooſe, or the gloſſy ſkin of ſcorbutics, perſpiration is interrupted, and the urine at the ſame time moſtly ſcanty; the lungs under theſe circumſtances muſt be nature's dernier reſource, by which the breath muſt be highly vitiated, and this organ expoſed to the whole fomes of the morbid acrimony; being by this means the only out-let for the materia perſpirabilis of the whole animal ſyſtem to eſcape at.

Except the copious defluction of ſaliva common to ſome phlegmatic people, particularly great chewers or ſmoakers of tobacco, may be reckoned an exception to this general rule; but this is a leſs general ſymptom than thoſe we have, and ſhall further enumerate, and may be accounted for by a peculiar diſpoſition of the ſalivary glands in the former, and in the latter, from the flow of the ſaliva being ſolicited from the habit of uſing tobacco, as before-mentioned.

In ſcorbutic ſailors, however, this diſcharge of ſaliva is frequently increaſed to an alarming degree, and can rarely be ſuppreſſed in ſuch patients, by any other means than by copious perſpiration. Gentle laxatives, and potent diuretics

have

have relieved ſome, and frequently have a ſhare in reſtraining this morbid diſcharge, which in proportion to its extent, is always injurious to the teeth and gums, and highly debilitating to the patient.

In order to correct the laxity of the ſolids, and promote the natural ſecretions and excretions,

Take of antiſcorbutic powder, No. 2, from v to x grains,
Antifebrile powder, No. 1, from v to x grains.
Powdered bark of the root of mazereon, x to xv grains,
Conſerve of wood ſorrel, j ʒ,
Syrup of orange-peel, ſufficient to make the maſs into a bolus.

To be taken at night, and perſpiration encouraged by vinegar, cyder, wine, or muſtard whey. A gentle diaphoreſis taking place is a good prognoſtic, and ſhould be unremittingly followed up.

Take of antiſcorbutic powder, No. 2, one packet, (*i. e.*) 60 grains,
Antifebrile powder, No. 1, xxx grains,
Bologne or Rheniſh tartar, crude, in fine powder, xc grains,
Hard extract of red bark, xc grains,
Eſſential oil of peppermint, ij ϑ,
As much ſoft extract of liquorice as will form the whole maſs into a paſte for making lozenges.

The

The extract of red bark and the powders ſhould be rubbed into an impalpable powder, and the eſſential oil added; thoſe ſhould be added by little and little to as much of the ſoft extract of liquorice diluted with wine or ſpirit, as will be ſufficient to thoroughly mix them up to the conſiſtence of the ſoft extract of liquorice, and then made into a paſte for lozenges with that extract, which will weigh about three ounces if properly made. This quantity made into thirty-ſix lozenges, may be conſumed in three, two, or in one day, according to the urgency of the ſymptoms.

The indiſſoluble matter left by the lozenge in the mouth is not to be ſpit out, but ſwallowed by the patient.

Theſe efficacious aſtringent lozenges may be advantageouſly alternated with the following agreeable acid lozenges:

Take of antiſcorbutic powder, No. 2, one packet.
Cryſtals of acid of tartar, cxx grains,
Eſſential oil of peppermint, ℥j,
Ipecacuanha root in powder, xlviii grains,
Myrrh in powder, ℥j,
Rob of lemon, orange, or lime-juice, and gum-arabic in powder, ſufficient to form the whole into a maſs of the conſiſtence of ſtiff paſte, which will be about three or four ounces.
Make it into forty-eight lozenges.

This

This quantity will in moſt caſes be ſufficient for two or three days, although there are inſtances of the whole quantity being taken in one day, without exciting the ſmalleſt nauſea. The indiſſoluble part left in the mouth is to be ſwallowed.

In the early attacks of the ſcurvy on the mouth and gums, theſe lozenges alone, or alternated with the aſtringent lozenges, have always been attended with the beſt effects, and frequently exceeded our moſt ſanguine expectations.

When managed in this manner they firſt excite, but preſently reſtrain an unuſual drain of ſaliva from the ſalivary glands; correct or neutralize its morbid taint in the firſt paſſages, and ſtrengthen and give energy to the organs of digeſtion throughout all their proceſſes.

They at the ſame time repreſs the progreſs of the ſwelling in the gums, and the incipient ulcers in the mouth and gums, and by ſtrengthening them, prevent the teeth from looſening in them, or their bleeding on every ſlight occaſion.

This form is well calculated for gradually and effectually introducing medicines of this nature into the ſyſtem, excluſive of their ſalutary effect in the mouth and ſtomach; their exertion on the whole habit, which will be beſt exemplified by experience, and which will prove them to be innocent, and efficacious in the incipient ſcurvy, and

in

in a ſtate of convaleſcency. *They are alſo good preventatives.*

As every thing that can be done to unload the ſurcharged lungs muſt be beneficial in this diſeaſe, and as no ſtep can be ſo effectual to anſwer this purpoſe as the opening outlets on the ſurface of the body for the tranſpiration of the peccant matter; and as gradual means with the generality of patients will in general be found the moſt effectual to obtain this grand purpoſe, theſe medicines may be much aſſiſted in this intention.

Firſt, by keeping the patient well clothed and moderately warm, and ſupplying him with ſmall, but frequent draughts of whey; or a decoction of the woods, acidulated with ſyrup of lemons, or any vegetable acid, particularly vinegar.

Secondly, by a moderate uſe of the warm bath, and a briſk, but ſhort-continued friction of the body and limbs, immediately on coming out of the bath. Firſt with a dry woollen cloth, and next with the ſame ſort of cloth wrung out of any warm fiſh, or other oil. Theſe parts immediately affected with the diſeaſe, may be ſlightly anointed to great advantage afterwards, with the dark unctuous, ſaponaceous, highly acid reſiduum of diſtilled vinegar, warm. This alternate relaxing and bracing the ſurface of the body and limbs, with anointing and friction, &c. by rendering the cuticular paſſages permeable, will be found of much more

more importance than can be well imagined, and highly conducive to the end propoſed; and will alſo contribute much to remove pain, hardneſs, and ſtiffneſs of the parts affected.

Whey, the ſerum of milk, the produce of highly animalized vegetable food, ſecreted from the blood, next to air, the pabulum vitæ of moſt infants, the firſt and natural ſuſtenance, and, in a dietic ſenſe, the higheſt antiſcorbutic in nature, may be carried to ſea in much greater abundance, and cheaper than portable ſoup is, in a form or ſtate equally portable, eſpecially from cold to hot countries, being procurable in any quantity that may be neceſſarily wanted in the former.

The operation of heat in warm latitudes on the lacteal veſſels of the cattle is ſuch, that they furniſh but a very ſmall quantity of milk, compared to its produce from the cattle of temperate and cold climates: one reaſon probably is from the want of paſture, but there are many parts of *Aſia* and *Africa* to which this want does not apply.

PORTABLE WHEY.

One gallon, that is, in London, ten-pence worth of milk, carefully evaporated to the conſiſtence of ſyrup; and this unctuous matter further inſpiſſated to dryneſs in a water-bath, will produce from

from a pound to 18 ounces of palatable whey, that will keep ſound, and in high preſervation of all its ſanative qualities, for a voyage round the world, out and home. The colour of this reſiduum of milk, will be the beſt teſt of its goodneſs, as the leſs it recedes from a dull, pale, browniſh white, the more careful has the proceſs been managed, and the better and ſweeter it will be: the nearer it approaches to a brown colour, the ſtronger will be the indication of the contrary qualities.

The inſpiſſated reſiduum of milk, digeſted with about as much water as was waſted in the evaporation, yields an excellent *whey*, more agreeable in taſte, and which keeps better than that made in the common manner. This *portable whey*, if properly excluded from air and moiſture, bears all the viciſſitudes of climate. It can be procured from evaporated milk as eaſy and ſucceſsfully as the eſſence of malt is prepared from malt, although the inſpiſſation is here carried farther, by reducing the reſiduum of milk to dryneſs. By ſuch eaſy means can this valuable article be added to the ſtores of the ſurgeon of the ſhip, that it would be unpardonable to omit it: one pound of which, with ſeven pounds or pints of ſweet water, makes about a gallon of whey, which including the expence of preparing, and a reaſonable profit to the manufacturer,

manufacturer, would come under eighteen-pence a pound.

Thoſe patients who unhappily labour under the morbid defluction of ſaliva before taken notice of, muſt be relieved by a more active courſe. Gargles muſt take place of lozenges; ſudorifics, diuretics, and laxatives, muſt be alternated with cordial and reſtorative medicines, or with a cordial and ſtrengthening regimen, when procurable.

This morbid ſymptom, from its early appearance in ſome patients, and its progreſſive virulence through each ſtage of the diſeaſe, though properly a ſymptom of the ſecond ſtage, we ſhall introduce here, as it ſerves to contraſt the mode of treatment in this caſe, with that which has juſt now preceded, from the greater urgency of the ſymptoms demanding immediate palliation.

Begin with the gentle laxatives already recommended, preceded by a clyſter to clear the rectum, and facilitate the operation of the cathartics; and though in moſt caſes of the incipient ſcurvy, theſe medicines will be found ſufficiently active yet they are not always to be relied on where a conſiderable defluction of ſaliva attends; conſequently the quantities of the antifebrile and antiſcorbutic powders muſt be increaſed in proportion to that ſymptom, until a nauſea is excited, or even a gentle vomit.

By cleanſing the ſtomach and inteſtinal canal, that

that fomes of corruption derived from abſorbing into the ſyſtem, the ſtagnate foulneſſes of their immobile contents are cut off, and the mobility of the ſecretions from theſe parts advantageouſly excited.

When diuretics are mentioned with ſudorifics, and purgative medicines, we beg that we may not be underſtood to have claſſed them together as medicines of equal efficacy; although in this diſeaſe uſually attended by a deficiency of urine, and frequently by a dropſical tendency, diuretics are by no means inſignificant medicines.

Gargles, medicines in general of no great account, are here not only indiſpenſible, but very potent remedies, whether we conſider them as auxiliaries to purgatives and ſudorifics, for the diverſion of the immoderate flux of humours into the mouth, or as deterging the ulcerations of the mouth and gums, correcting their laxity, and contracting the mouths of the emuctories of ſaliva and mucus, and thickening the conſiſtence of thoſe juices, which altogether contribute to leſſen, and at length ſubdue this exceſſive diſcharge; at leaſt the ſort of gargles made uſe of, ſhould be calculated to anſwer theſe intentions.

Take of oak bark, j ℥,
Alum, j ʒ,
Honey of roſes, j ℥,
Water, a pint and a half.

Boil the water gradually with the oak bark until ſuch time as the liquor, when ſtrained, will amount only to a pint, to which add the alum and honey.

Take of tincture of myrrh, ij ℥,
Honey of roſes, ij ℥,
Barley-water, one pint,
Oil of vitriol, from xxx to lx drops.

When this gargle may be thought too ſtrong, it may be occaſionally lowered with proof ſpirits and water to the deſired ſtrength; or the quantity of vitriolic acid may be reduced.

Theſe means, with the warm bathing, ſubſequent friction, oiling, and rubbing, with the brown reſiduum of vinegar, and the occaſional fomentation of particular parts, and the expoſing ſuch parts when hardened, contracted, or ſwoln, to the mingled vapour ariſing from ardent ſpirits, vinegar, and water; together with as much airing and exerciſe as can be ſafely urged, bid fair towards diſburthening the lungs, and repelling the ſalivary diſcharge, by reſtoring the due tone to the ſkin, and removing its papillary obſtructions; while the energy of the increaſed circulation throws off, or evacuates by the natural emunctories ending on the ſurface, the morbid acrimony which indolence and obſtructed perſpiration, with unreſpirable air, and other concurring cauſes, had returned upon the ſyſtem in the form of ſcurvy. We

We have ſaid as much of airing and exerciſe as can be ſafely urged, as we cannot help thinking that indolence is too much encouraged in every ſtage of the diſeaſe, particularly in the firſt and ſecond ſtages, nay even in the firſt ſymptoms, that it is too much the practice to cut off theſe great reſtoratives, air and exerciſe, by conſigning the patient to a ſick birth on the firſt appearance of the diſeaſe. Indeed a ſailor or ſoldier are no ſooner put on the ſick liſt, than they think it a licence for indolence, and an exemption from duty. Every one of the leaſt obſervation knows the effect of this excluſion from the ſociety of their healthy ſhipmates and companions, and the bad tendency the dejection it excites. Let the healthieſt man among them be kept a few days in the morbid air of the ſick birth, the effects of which would be too conſpicuous to need further comment.

Every ſymptom, denominated fever, or many appearances indicative of ſcurvy, would attend ſuch treatment even of the moſt healthy; how greatly then muſt it aggravate thoſe ſymptoms in the diſeaſed? Surely, in warm climates at leaſt, the deck, and the cheerful ſociety of their healthy companions, is a ſituation much preferable to a ſick birth, and conſequently more conducive to their recovery.

During their abſence on deck, the ſick birth can be fumigated, aired, and cleaned, which may

be no bad exerciſe for the incipients and convaleſcents themſelves, as the leſs thoſe who are much afflicted are in it in the day-time the better, and the leſs of theſe attentions will be requiſite, airing or ventilation excepted; and ſomething ſhould be found for them to do, even when not weak handed.

The confinement to a hammock, and a recumbent poſture, ſhould in moſt caſes be diſcouraged; and when indulged on account of much debility, it ſhould be remembered, that every effort to prevent its becoming habitual, ſhould be carefully attended to, as inattention in this has coſt many their lives, and retarded the cure of many more, where exceſſive lenity, or miſtaken humanity, has too licentiouſly permitted it.

The conſequence of ſuch indulgence bringing on habitual inactivity, may be ſeen in the terrible effects of ſudden motion, or ſudden expoſure of ſcorbutics to the air; in the precautions of Dr. Lind and others, who recite the fatal conſequences attending it.

The Doctor, as already remarked, obſerves, that perſons in the advanced ſtages of this diſeaſe, are not without great caution, to be expoſed to a ſudden change of air; or brought up, from laying a-bed below in the hold of the ſhip, to the freſh air, in order to their being landed.

On this occaſion, though ſeemingly pretty hearty,

hearty, they have not unfrequently expired. The uncommon degree of ſloth and lazineſs which conſtantly accompanies this diſeaſe, has, on the other hand, been ſometimes miſtaken for the wilful effect of the patient's natural diſpoſition, and has proved fatal ſometimes, when obliged by their officers to go aloft, and make other exertions, which from their debility they were unequal to.

It is judiciouſly remarked by Dr. Rouppe, that before theſe men are ſet about the uſual work of the ſhip, the ſurgeon, from the preſent ſtate of the ſick, ſhould order their work accordingly, leſt they be ſuffocated by the circulation being too much accelerated.

At the beginning of the diſorder, the men are able to bear all kinds of hard labour and exerciſe, except thoſe of the ſevereſt kind, which require a man's full ſtrength: but as the diſorder gains ground, the exerciſe ought to be leſs, and that as much as poſſible in the open air; and they ſhould every day get upon deck, and walk there; for if they neglect it at firſt, in a ſhort time they are rendered incapable, and cannot be brought into the open air without danger of ſuffocation.

In caſe a man, by wounds, is neceſſarily confined to his hammock, he ſhould be ſwung every day in it, as much and as frequently as he can bear. This kind of motion, as an exerciſe, under

theſe circumſtances, has been contrived by Dr. Lind, and recommended by Dr. Rouppe.

If the ſcorbutics, from accident, bad or inclement weather, cannot come upon deck, then ſuch exerciſe as they can take below ſhould be enforced. But, in the laſt ſtage of the diſeaſe, not only all kind of labour, but almoſt all ſort of exerciſe is ſuperſeded by the danger they are in of being ſuffocated on the ſlighteſt exertions.

And when there is an occaſion for the patient's getting up, his hammock ſhould be lowered down gradually at the feet, and ſo managed that he may come gently on his feet, and afterwards accuſtomed by gentle degrees to ſtand, and then walk, and carefully led towards the ſtairs; gradually to accuſtom them to the air, whoſe elaſticity would be too great for them to go all at once into it: and laſtly, when their ſtrength permits, they may be carried upon deck, and by degrees brought to move about. Theſe precautions are the more neceſſary when the patients are to be carried on ſhore, as a want of due attention to them has coſt many their lives that otherwiſe might have done well.

II*. In the ſecond ſtage of this diſeaſe many more ſymptoms occur, beſides thoſe that have been already mentioned in the firſt, but are not ſo

* Dr. Rouppe.

conſtantly

conſtantly met with as the former, nor do they happen in all caſes. Amongſt theſe the too great deflu&ction of ſaliva, is a principal one, which, for the reaſons already aſſigned, we have gone very fully into, in the ſymptoms of the firſt ſtage of this diſeaſe, to which we beg leave to refer the reader.

With reſpect to this ſymptom, we ſhall here take occaſion to remark, that the teeth in thoſe patients looſen ſooner, and their gums are ſooner deſtroyed than in thoſe who are not afflicted with this deflu&ction of ſaliva.

Very acute pains are uſually felt in ſome part or other of the body and limbs, particularly about the bones in this ſtage of the diſeaſe; and theſe rarely yield to any remedy, and as rarely ſhift from one place to another.

When the little ſpots of the firſt ſtage diſappear, they are in this ſtage ſucceeded by larger and deeper, and thoſe more under the ſkin than the former. The ſpots at firſt are red, and generally keep ſo as long as the legs remain hard; but when they become œdematous, the ſpots grow livid and black, like thoſe which ariſe after contuſions.

Thoſe are frequently ſo thick upon the legs and knees, that little or nothing of the uſual colour of the leg remains, principally red, and black and blue in particular places.

In this ſtage the legs are commonly very troubleſome, painful, and itchy; and if ever ſo ſlightly ſcratched, the epidermis or outer ſkin is ſo tender as to rub off, by which means ſcorbutic ulcers break out, and not ſpontaneouſly, as ſome ſuppoſe.

Thoſe who have hard legs their ulcers never emit any pus, but are ſubject to increaſe, and are generally covered with a yellow cruſt, as if occaſioned by an eſcharotic. If the pellicle is ſeparated the ulcers bleed, and are of a livid colour at bottom.

With reſpect to the cure of them, it is generally attended with great difficulty, and but rarely effected until the diſeaſe is removed; but if kept clean and well managed will ſeldom increaſe, or but very ſlowly. The lint and plaſter are tinged with a yellow colour.

Scorbutic ulcers frequently occur, and principally affect men of a relaxed habit of body, who have imbibed the ſcurvy from confinement to their hammocks, by preceding diſeaſe, fevers, or accidents; that is, thoſe who have contracted the ſcurvy from ſuch debilitating cauſes.

The ulcers in thoſe ſubjects, inſtead of a yellow ſkin and hard edges, are ſoft. The funguſes which are ſprouting and livid, bleed on the ſlighteſt occaſion, and are difficult to ſtop.

About the end of this ſtage the knees are ſometimes

ſometimes in great pain, ſwell, and feel very hard to the touch: beſides this, a fluctuating matter is ſometimes obſerved to lodge at one time between, and at another time above the capſula of the joint; and then if the whirlet-bone moves, which can ſeldom be obſerved on account of the ſwelling, there is juſt ſuch a noiſe as ariſes from the grating of broken bones.

It is obſervable in this, and in the third ſtage of the diſeaſe, that ulcers almoſt, or entirely healed, grow raw, or break out afreſh; that bones recently ſet break afreſh, nor do they unite again until the diſeaſe is ſubdued.

Thoſe extraordinary ſymptoms are attended with this ſurpriſing effect, that the bones which were fractured, beſides their being ſwelled and hard, are never in any pain; and though they ſhould continue fractured for ſome months, if the diſeaſe is properly treated, they will unite again as the diſeaſe is cured, without the leaſt deformity or imperfection.

III. In the third ſtage of this diſeaſe, the ſymptoms are ſo very ſevere, that the utmoſt ſkill and attention, accompanied with the advantages of proper medicines, and the moſt ſalutary regimen, can only inſure a cure; and ſometimes but a reſpite, until the patient gets on ſhore to enjoy alſo the benefit of the land air, and gentle exerciſe to complete the cure.

Beſides

Beſides the ſymptoms enumerated, more or leſs aggravated by the continuance of the diſeaſe, palpitations of the heart, and fainting are very frequent in the laſt ſtage of the diſeaſe. Hæmorrhages, dyſenteries, dropſy, and gangrene are final ſymptoms. In this ſtage the ulcers grow worſe, and are ſoon gangrened; and the broken bones which have been conſolidated for many years are diſſolved again.

Phyſiology teaches us, ſays Dr. Rouppe, that a man conſiſts of a body and mind, and that they act mutually upon each other, though we know not how they act. But we do know by obſervation, that the chearfulneſs of the mind greatly depends on the due temperament of the body, particularly of the abdominal viſcera, and on the due circulation of the fluids in them.

It is plain, that the paſſions of fear and ſorrow in hypochondriac people ariſe from the obſtructions of the viſcera; for, as ſoon as a free circulation of the blood is reſtored in them by a ſkilful phyſician, the ſerenity of the mind quickly returns. Sanctorius has obſerved, that the mind is briſk and chearful whilſt there is a free perſpiration on the ſurface of the body; and that, on the contrary, when the perſpiration is impeded, the body is heavy and the mind ſorrowful.

Sorrow very frequently precedes the ſcurvy, and is as often a ſymptom of it; therefore it is nothing

nothing ſurprizing that thoſe affections of the mind ſhould increaſe in this diſorder, along with the pains and obſtructions of the viſcera.

All ſecretions depend on the free circulation of good blood, which, from a viſcid chyle and relaxed fibre, with great difficulty takes place in this diſeaſe: it is not to be wondered at, that many of the functions neceſſary to life and health ſhould be thereby weakened, particularly chylification; for, beſides the gaſtric, inteſtinal, and pancreatic juices, which are peccant in quantity and quality, the ſecretion of the bile is likewiſe retarded and diminiſhed, from which the periſtaltic motion of the inteſtines grow proportionably languid; from thence the inclination of going to ſtool is leſſened. By theſe means the mucus which ought to lubricate the inſide of the inteſtines, is neither ſecreted in quantity or quality, from whence ariſes coſtiveneſs.

The ſlight ſwelling of the belly, to which ſcorbutics are ſubject, and diſagreeable ſenſation in the epigraſtic region, ſufficiently indicate the difficult and retarded circulation of the fluids in the abdominal viſcera.

And if the quantity and tenacious nature of ſuch fluids are increaſed, and the cauſes which produced the diſeaſe continue, the fluids which cannot paſs begin to lodge in the veſſels, and produce dangerous obſtructions, particularly where the paſſage of the blood is naturally ſlow and heavy.

By

By anatomy and diſſection we are aſſured, that there is the moſt intricate and winding paſſages of the ſmall veſſels ſeated in the glands, whence the fluids being leſs able to paſs eaſily, adhere and bring on obſtructions in the lungs, liver, ſpleen, &c. evident in the diſſection of ſcorbutic patients, whoſe lungs ſink in water, &c. Without enlarging farther, from what has been ſaid, the nature of the diſeaſe, and the real ſtate of the fluids, as well as of the ſolids, is ſufficiently obvious.

The ſcurvy, therefore, ſeems to be ſuch a depravation of the fluids, and relaxation of the ſolids, as frequently ariſes from the want of a daily renewal of good juices, from a bad aſſimilation of thoſe which are every day taken into the conſtitution, and from the due elaſticity, motion, and natural heat of the veſſels and viſcera being defective; by which means a thick glutinous blood, filled with heterogeneous particles badly digeſted, unfit for the purpoſes of nutrition, and very apt to produce obſtructions, is generated in the body, the functions weakened, and beginning putrefaction follows.

Dr. Rouppe, who next to Dr. Lind, we acknowledge ourſelves indebted for much of what we advance in this diſeaſe (excepting what relates to our practical obſervations in the medicines employed, and thoſe we recommend) gave the following with great ſucceſs.

Take

Take of garlic, vj ʒ,
Squills, iv ʒ,
Camphor, j ʒ,
Salt of hartſhorn, j ʒ,
Contrayerva powder, vj ʒ,
Eſſential oil of aniſeed, or mint, ſufficient to diſſolve the camphor. Beat the garlic and ſquills well together in a ſtone mortar, and mix the ingredients thoroughly together into a maſs of the conſiſtence of pills.

Of which he gave from twelve to twenty grains, morning and evening. It excited a fine perſpiration when the patient drank warm tea, or ſome aromatic infuſion; when deficient in clothing, it went off by urine.

By the above courſe, the Doctor preſerved numbers from the ſcurvy, and cured many that had it. He obſerved that this remedy ſometimes cauſed a ſlight fever for a few hours, or raiſed the pulſe, but never hurted the patient, unleſs in the laſt ſtage of the diſeaſe, when it produced violent anxieties, under which circumſtances it muſt be given with great caution.

Dr. Lind recommends to thoſe who complain, after having been afflicted with the ſcurvy, of a numbneſs and pain in the joints, or chronic rheumatic pains, to ſwallow a ſpoonful of muſtard-ſeed bruiſed, once or twice a day, or to be well ſweated with a medicine now generally known by the

the name of Dr. Dover's powder, taken from the quantity of half a ſcruple to a ſcruple, every night at bed-time.

This medicine has been adopted in the London and Edinburgh Pharmacopœias; by the former under the name of *pulvis ipecacuanha compoſitus*; in the latter it is called *pulvis ſuodrificus ſive doveri*. We ſhall give each *formula* as follows:

Compound powder of ipecacuanha of the London Diſpenſatory.

Take of ipecacuanha,
Hard purified opium, of each in powder, j ʒ,
Vitriolated kali in powder, j ʒ,
Mix them.

Sudorific, or Dover's powder—Edinburgh Diſpenſatory.

Take of vitriolated tartar, iij ʒ,
Opium, and the root of ipecacuanha, beat, of each j ℈.
Mix, and grind them accurately together, ſo as to make an uniform powder. In ten grains of the former, and in eight grains of the latter, there is one grain of opium.

The operator ought to be careful that the opium and ipecacuanha ſhould be equally diffuſed through the whole maſs of powder, otherwiſe different portions of the powder muſt have differences in the degree of ſtrength.

This

This powder is eſteemed one of the moſt certain ſudorifics, and as ſuch was recommended by Dr. Dover. Modern practice confirms its reputation in the rheumatiſm, dropſy, and ſundry other diſeaſes, where it is highly neceſſary to procure a copious ſweat, and where it is ſometimes difficult to produce it by other means.

The uſual doſe is from five to ten or twelve grains, according as the patient's ſtomach and ſtrength can bear it. It is convenient to avoid much drinking immediately after taking it, otherwiſe it is very apt to be rejected by vomiting before any other effects are produced.

Dr. Morgan had great reliance on the following ſudorific tincture, which we ſhould apprehend has its uſes in that intention, where a ſweat is immediately and copiouſly required, a ſolution of opium being more quick, and active in its effects than when given in powder.

Take of ſaffron, jv ʒ,
Opium, jv ʒ,
Camphor, j ʒ ſs.
Rectified ſpirits of wine, one pint.

Having previouſly obtained a tincture of ſaffron in the ſpirit of wine by digeſtion for four or five days, ſtrain off the fluid part from the ſaffron, and add the opium and camphor. When they are diſſolved, decant the tincture for immediate uſe.

The

The Doctor very ſtrenuouſly recommends this potent tincture in comatoſe ſtupors and deliriums, common in nervous fevers, which ſymptoms he has always found relieved by it; in conſequence of its raiſing the pulſe, diffuſing the natural heat, and exciting a critical ſweat. He found alſo that cold ſweats, deliquiums, convulſions, and twitchings of the nerves, were ſpeedily relieved by it.

The doſe from twenty to ſixty drops, or a common tea ſpoonful, repeated as occaſion requires, with the free uſe of wine-whey, to help to raiſe and maintain the ſweat. It is neceſſary to obſerve, that this tincture is ſtill more apt to be rejected by vomit than Dover's powder, if the patient drinks much immediately after taking it.

From five to ſeven grains of the antiſcorbutic powder, No. 1, given every two, three, or four hours in any form, and to the quantity of twenty, or at moſt twenty-five, or twenty-eight grains in the whole, has ſcarcely ever failed of producing a gentle equable ſweat, uſually ſucceeded by a ſoftneſs of the ſkin, and ſubſequently inſenſible perſpiration, when all other attempts at a cuticular diſcharge had failed.

We have met with ſome caſes of ſcorbutics, and that but very rarely, where three times this quantity has been given in the twenty-four hours before the cutis has yielded to its impreſſion; and never but one where a warm bath, friction, and anointing

anointing alternately with oil, and the reſiduum of diſtilled vinegar had been uſed.

In ſome patients inveterately overrun with the diſeaſe, where the antiſcorbutic powder, No. 1, had been taken to a conſiderable quantity, it was rejected by vomit, when it uſually operated by ſtool; and if the patient was ſtill kept warm, and made to drink frequently and freely of any warm dilutent drink, particularly when acidulated with any vegetable acid, a profuſe ſweat broke out, although the uſe of the powder was not continued.

This at firſt was alarming, on account of the very low and weak condition of the patient, and conſequently abated our ardour in following up this ſalutary criſis, until experience taught us that we might ſafely purſue it, but not beyond due bounds.

We have found the following forms very convenient for giving the antiſcorbutic powders in.

The bitter tincture recommended by Dr. Lind, compoſed of a gallon of brandy, eight ounces of bark, and four ounces of dried orange-peel, is a very good baſis for making theſe powders into a fluid form, with the addition of two ounces of the powdered bark of caſcarilla. A gallon of brandy, or proof ſpirits, in ſix or eight days will effectually extract the eſſential qualities of thoſe ingredients.

Take of the above agreeable tonic bitter, four pints,
Antiſcorbutic powder, No. 1, two packets,
Antifebrile powder, No. 1, one packet,
Bark of mazereon root, ij ʒ.
Digeſt for two or three days, and then decant off for uſe.

From one to three or four drachms of this antiſcorbutic ſolution, taken in a glaſs of wine, or cup of whey, or any other convenient vehicle in a ſufficient doſe. It is generally moſt efficacious when adminiſtered in ſmall doſes every half hour or hour, in the quantity of one ſcruple to a drachm.

Its effects are, to promote all the fluid ſecretions, particularly ſweat and urine, and the former of theſe copiouſly.

Take of red or white wine, three pints,
Antiſcorbutic ſolution, one pint,
Powdered root of ipecacuanha, vij ʒ,
Or wine, or tincture of ipecacuanha, one pint.

When the tincture of ipecacuanha is preferred to the powdered root in ſubſtance, the antiſcorbutic wine is compoſed by ſimple commixture; otherwiſe the powdered ipecacuanha muſt be digeſted for two or three days with the wine and ſolution here ordered; and when the tincture of ipecacuanha is

is employed, one pint of the wine ordered may be omitted, to prevent weakening the medicine below the ſtandard here intended, by a pint of ſuperfluous fluid.

From about three drachms to an ounce of this antiſcorbutic wine, is a ſufficient doſe. We have given it a name to which it is probably better entitled than any thing hitherto employed in this intention. In addition to its being a ſudorific, ſtimulant, tonic, nouriſhing medicine, it is powerfully deobſtruent; and a very ſafe and efficacious medicine in the ſecond and laſt ſtages of the diſeaſe.

If a few drachms of it excite a nauſea, the exhibiting it even in much larger doſes, in a glaſs of lemonade, lemonade and peppermint-water, or peppermint-water well acidulated with any vegetable acid, will reconcile it to the ſtomach; in which caſe it will operate more plentiful by ſtool and urine than by perſpiration.

There is no compoſition of the Materia Medica perhaps, that will ſo effectually reſtore the injured lungs of the ſcorbutic patient in the laſt ſtage of the diſeaſe; remove the cough, aſſiſt the reſpiration, and ſtrengthen the tone of this delicate vital organ.

Take of antiſcorbutic ſolution, one pint,
Antiſcorbutic wine, one pint,
Antifebrile powder, No. 1, one packet,
Vinegar of ſquills, one pint,
Lemonade powder, iij ℥.
Diſſolve the lemonade powder in the vinegar of ſquills, and mix them all together for uſe.

This extemporaneous mixture is highly beneficial in the foregoing intentions, and diſorders of the breaſt, and ſeldom fails to remove, or drain off water lodged there, not unfrequently by the urinary paſſages. It is powerfully ſtimulant, and attenuates viſcid juices.

Moderate doſes in cinnamon-water, of from two ſcruples to two drachms, agree beſt with debilitated patients; otherwiſe it acts as an emetic and cathartic, to which it is always diſpoſed in thoſe patients, whoſe ſtomachs are much affected with tough viſcid phlegm, or crude indigeſted matter. On ſuch, after taking it two or three times in as many hours, in the above doſes, it generally operates upwards and downwards, when it is ſure to leave a ſalutary moiſture on the ſurface, and eject the water upwards.

The advantages of ſuch a medicine in coſtive patients in this diſeaſe, which evacuates plentifully by ſtool and urine, ſucceeded by a gentle diaphoreſis, is too obvious to need any farther obſervations:

vations: and, happily, it is far from being an unpleaſant remedy.

When rejected by vomit its effects on the bronchial and neighbouring glands in its paſſage up, are remarkably beneficial in correcting and reſtraining the morbid diſcharge of ſaliva, which indicates how advantageouſly it may be employed in *gargles* of the mouth and fauces.

Theſe medicines are in a form convenient for immediately exerting their influence on the ſtomach and inteſtines, and when taken up and carried into the blood, it will be found that they have not exhauſted all their influence on theſe organs; nor in their paſſage, on a viſcid chyle, but ſtill retain the power of ſubtilizing this ſtream of the blood of life alſo, by fitting it for all its ſecretions and excretions.

And this probably from their ſtimulus on the animal fibre, of which the veſſels are made up, which may be more properly termed the canals of life, as the fluids owe their mobility to the tone and elaſticity of theſe fibres, and of conſequence, mutually act and re-act on each other from reciprocal impulſe. Hence obſtructions are removed, and the fluids urged through the minuteſt paſſages.

In order to enjoy the full benefit derivable from theſe medicines, in the abſence of a nouriſhing regimen, which in this diſeaſe has been

pretty generally allowed preferable to phyſic, when we have not fleſh-broths, greens, and an abundance of vegetable acids, &c. we ſtrenuouſly recommend following up the exhibition of our medicines, and all others of the ſame intention, with the free uſe of warm or tepid liquids; ſuch as gruels, panados, broths made of portable ſoup, and barley, or rice, or oatmeal, ſowins, or flummery, tea, infuſions or decoctions of the woods, or of almoſt any thing ſapid, even if it were no better than water and a little vinegar, with a pinch of ſalt in it; the common beverage of the poorer ſort of peaſants in thoſe ſouthern parts of Europe, where ſmall wines are dear. Bitters and aromatics of any kind, that will take off the inſipidity of water, in default of better means, is preferable to leaving the medicines wholly unaſſiſted to the natural depletion of the diſeaſe.

Any thing to keep the veſſels full, and propel the medicines forward, and keep up that action and reaction we have been ſpeaking of, to retrieve the languor of the circulation; thereby to promote the neceſſary ſecretions and excretions, and with them the expulſion of the ſcorbutic taint; alternately ſupporting the cuticular and reinal diſcharges by this artificial plethora, and by keeping the patients warm clothed in the one, and cool in the other intention; and as far as is conſiſtent with ſafety, to exerciſe them in both in the open air.

Air,

Air, exerciſe, and repleniſhing the ſyſtem even in this way, will counteract the influence, and not unfrequently ſubdue inveterate ſcurvy.

When at ſea there is plenty of portable ſoup, eſſence of malt, eſſence of ſpruce, lime, lemon, or orange juice, rob of lemon-juice, molaſſes, lemonade-powder; pickles, preſerves, marmalade, portable whey, acid ſalts, acid juices; malt, wheat, barley, oatmeal, and rice, ſourcrout, with other preſerved vegetables, brown ſugar, vinegar, wine, cyder, &c.

And at land the benefit of freſh proviſions, freſh greens and fruits, plenty of vegetables, and all thoſe comforts, as well as neceſſaries, procurable on ſhore, the ſcurvy is a diſeaſe that may be ſoon got under, and effectually cured by our medicines; and numerous are the inſtances of its being cured by regimen only.

But if in the abſence of the greater part of theſe auxiliaries above-enumerated, and with no better aſſiſtance than the poor ſuccedaneum that we juſt now propoſed to repleniſh the veſſels of a debilitated ſcorbutic ſyſtem, our medicines in general effect a cure, they want only a fair trial to gain them admiſſion into general uſe, and the ſanction of the candid practitioner to render them beneficial to mankind.

That fulneſs of the vaſcular ſyſtem that we have juſt now recommended to accompany the

exhibition of our medicines in this diſeaſe, points out the neceſſity there is for always being provided at ſea with plenty of water, and how careful we ſhould be in taking every opportunity of providing and preſerving it in a ſound ſtate; and when in our power of changing that which is, or has a tendency to corrupt, for freſh water, on every opportunity that ſerves; or even the poor ſuccedaneum we have propoſed in the abſence of better means, would ſtill be wanting to the miſerable ſcorbutics.

The great hardſhips which ſeamen are frequently expoſed to from the deficiency of this article in the merchant ſervice, which the object and value of freight induce the captains and owners to admit but a ſcanty pittance of. The rivalſhip among ſhip-owners, ſo beneficial to commerce, may be one motive to leſſen the wiſh of their captains to take in no more than a bare allowance of proviſions, and a ſcanty pittance of water for the voyage. Independent of the ſcurvy and other diſeaſes, dreadful has been the conſequences ariſing from ſuch conduct to the ſhip's company, both with reſpect to hunger and thirſt, which have often occaſioned the loſs of many valuable lives.

It is much to be feared, that that governing principle of ſelf-intereſt, will in this manner always influence this ſervice, until the legiſlature takes an opportunity of correcting this abuſe, which

which would form a good additional clauſe, or amendment to the ſlave bill.

The keeping up this fulneſs of the veſſels in this diſeaſe, beneficial in all climates, is more ſo in warm latitudes, where the waſte of animal fluids are ſo much greater by perſpiration: we might have ſaid always, except when interrupted by the ſudden application of cold and cold and moiſture.

Theſe interruptions to perſpiration frequently happen, and often prove fatal from night-dews, cold moiſt fogs ariſing from ſwamps and marſhes, to which ſeamen and ſoldiers, but more particularly the former, are much expoſed.

And when the perſpirable matter is ſuddenly checked, and returned upon the animal ſyſtem, a fever, flux, or ague is commonly the conſequence. If they are ſo fortunate as to eſcape theſe diſeaſes, and the concentrated phlogiſticated matter thrown upon the lungs and bowels, are favourably carried off by theſe evacuations in a conſiderable degree, the remaining matter of diminiſhed perſpiration diffuſes itſelf through the whole body, and becomes then a certain degree of ſcurvy, and the natural outlet of diminiſhed perſpiration, the lungs, become loaded, the breath offenſive, and the fauces, mouth, and gums contaminated, &c.

Defective nutrition and diminiſhed ſecretion, the cauſe and effect of ſcurvy, will be always palliated,

liated, and frequently counteracted by the copious introduction of tepid fluids.

If the nutrition afforded by theſe fluids, from being more or leſs ſaturated with farinaceous ſubſtances, while they corroborate the conſtitution, ſhould be ſuppoſed morbidly to increaſe the viſcidity of the blood, from the nature and tenacity of their ſubſtance, this may be readily obviated by acidulating them with cream of tartar.

The property of cream of tartar, in common with moſt ſaline ſubſtances is, to attenuate and divide viſcidities. All acids are ſaline ſubſtances; bitters, aromatics, and aſtringents owe theſe qualities to ſaline ſubſtance; for confirmation of which, ſee the aſtringent principle of the gall-nut, and more particularly what we have ſaid in the ſection of acids.

Scorbutic dyſentery. We have obſerved that the ſcurvy often aſſociates with a flux, and muſt here remark, that though it ſhould be moderated according to the ſtrength of the patient, it would be imprudent to ſtop it. When it is the criſis of the diſeaſe, and the patient not ſo ſuddenly reduced in ſtrength as might be naturally expected, it is a favourable ſymptom.

The ſafeſt way of managing it, is in the beginning to give gentle, but effectual purgatives combined with vegetable acids, alternated with mild

mild aſtringent corroborant medicines, as the bark digeſted in red wine, and combined with opium.

If attended with vomitting, and great irritation of the ſtomach and parts adjacent, it ſhould be treated as directed under *cholera morbus*; firſt, by cleanſing out the ſtomach with camomile-tea, ſlightly impregnated with opium or volatile alkali.

We cannot here avail ourſelves of the aſſiſtance of mercury, from the danger of provoking an inveterate ſalivation, which this powerful drug never fails to excite in ſcorbutics, to the imminent danger of their lives. Under dyſentery will be found the method of treatment proper for a flux, equally applicable to ſcorbutic dyſentery, which does not in other reſpects require a different courſe, except in the avoiding of mercury.

Take of powdered Peruvian bark, jv ℥,
Caſcarilla bark, powdered, j ℥,
Caſſia ligna, powdered, j ℥,
Red or white wine, three pints.

Digeſt the powders in the wine for two or three days. Decant it before it cools, and add four ounces of tincture of bark warm alſo.

From one to three ounces of this medicated wine may be given every two or three hours, adding from twenty to thirty drops of laudanum to each

each doſe, more or leſs, according to the urgency of the ſymptoms.

When wine cannot be obtained, prepare and give a decoction of theſe ingredients; to which, when decanted, may be added an ounce of gum-arabic, and four ounces of tincture of the bark. The doſe from two to four ounces, with the ſame addition of laudanum, repeated every three or four hours, varying the quantity of laudanum as the ſymptoms indicate.

Keep the inteſtines clean with caſtor-oil, or a ſaline purgative, acidulated with lemon-juice, or cryſtals of tartar. Allay the irritation of the rectum with emollient anodyne clyſters, compoſed of ſix or eight ounces of decoction of linſeed, or jelly of ſtarch, one ounce of freſh ſuet, or half an ounce of olive oil; to which add forty or fifty drops of laudanum, more or leſs in proportion to the pain and irritation.

If the griping and pains in the bowels are very ſevere in the beginning, reſort to fomentations and the warm bath.

The diet ſhould be water-gruel, ſego, or ſalep, with wine, to ſupport the ſtrength of the patient. The drink barley-water, rice-gruel, lemonade, and almond-milk. In the convaleſcent ſtate light ſoups, and but a little animal food, until the bowels have in a moderate degree recovered their tone; then

then ſuch as are leaſt ſtimulating, and moſt nouriſhing.

When the corroborant electuary ordered in dyſenteries, page 132, omitting the antifebrile powder, No. 2, may be adminiſtered, which will aſſiſt much in reſtoring the patient, and confirming the cure.

A *dropſy* is another unfavourable concomitant of the ſcurvy, and ſhould be treated as laid down under that head, allowing for the great debility of the patient, who is uſually ſeized with this additional attack in the laſt ſtage of the diſeaſe.

Theſe medicines recommended in the ſcurvy for determining the ſcorbutic acrimony to the ſkin, and detaching it from thence by tranſpiration, are well ſuited to ſubdue the dropſical ſwellings of the legs, and remove the water from the cheſt.

Conſiderable quantities of water frequently accumulate in the breaſt, which occaſion violent and inceſſant coughing, with a conſtant ſpitting of tough phlegm, and ſometimes a difficulty of breathing.

Œdematous ſwellings of the legs accompany theſe diſorders of the breaſt, and are the ſureſt ſigns of water being in that cavity, and not uncommonly communicate with each other, although it muſt be owned ſuch paſſages are unknown to anatomiſts.

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The conſumptive, aſthmatic, and dropſical complaints in the laſt ſtage of the ſcurvy, called the ſcorbutic complaints of the breaſt, are relieved by bliſters applied to the ſeat of the diſeaſe, with a milk and vegetable diet, fruits, and acids.

Expectoration at the ſame time promoted by very ſmall doſes of oxymel of ſquills, adminiſtered in ſolutions of ſpermaceti; eaſe and reſpite from the cough by gentle anodynes every night. This treatment, accompanied with a mixture of the antiſcorbutic medicines before preſcribed, bids fair to effect a cure.

When ſcorbutic ulcers attend, if of long ſtanding, and ſufficient proviſion being made for healing them up, as laid down under that head, iſſues near the part, and an electuary of prepared crude antimony, accompanied with a decoction of the woods, alternated with the liberal uſe of the antiſcorbutic powder, No. 1, in ſuch forms as may be found moſt convenient, will in general anſwer the intention; and in thoſe intolerable pains frequent at this time, will be highly beneficial, either alone or combined with the antifebrile powder, No. 1.

When the legs are ſwelled and œdematous, gentle friction with warm flannel, and fomentations with a mixture of the antiſcorbutic wine and proof ſpirits, alternated with the application of the reſiduum of diſtilled vinegar after each friction with the

the warm flannel. And if the ſwelling is ſmall, ſoft, and not very painful, after friction and fomentation, roll them up with an eaſy bandage from below, upwards. Repeat theſe applications night and morning.

In *dropſical caſes* where the ſwellings remain obſtinate, bliſters applied a little above the ancle of both legs will evacuate the water without any danger of a mortification of the part: we are warranted in this practice by Doctors Lind and Rouppe. The pains of the limbs are greatly relieved by bathing, and gently rubbing in the warm reſiduum of diſtilled vinegar; hardneſs and contractions by ſubſequent anointing with warm oil, and laſtly with the yolk of an egg beat up in half a pint of ſcorbutic wine, which for external uſe may be prepared with white wine.

The former of theſe gentlemen, when the conſtitution had been tolerably ſound, has often cured very obſtinate dropſies by exciting a gentle ſalivation, with a ſcruple of pilula mercuriales taken every other night, and by giving on the intermediate days, a mixture of ſquills and ſal diureticus.

He relates from Mr. Murray, that a copious ſalivation has been unintentionally induced even by well-prepared Æthiop's mineral, in ſcorbutics, who found a large doſe of ſal diureticus ſpeedily remove it. He makes this remark, on recommending an electuary of crude antimony and Æthiop's

Æthiop's mineral, in the cure of *ſcorbutic ulcers*. Dr. Lind himſelf, when he found the gums ſufficiently hardened, has put ſcorbutics under a very gentle courſe of mercury, which he generally extinguiſhed with a ſmall quantity of balſam of ſulphur, and found it to ſucceed well, when the intention was not to raiſe a copious ſalivation. He ordered a bottle of decoction of the woods to be drank every day at the ſame time. This, by promoting perſpiration, aſſiſted the operation of the mercury.

If, in either of thoſe combinations of mercury and ſulphur, the mercury is ſaturated with ſulphur, no ſalivation can take place, from the neutral compound. But that has not been the caſe from ſalivation being excited, as we know of nothing in the human ſyſtem, that could have decompoſed it; hence only the unſaturated part can have any influence.

Surely, when the practitioner judges it ſafe to venture on ſalivating a convaleſcent ſcorbutic, it will be beſt to adopt the moſt certain, and leaſt irritable mode of adminiſtering mercury. Theſe are the mildeſt mercurials, as Plenk's ſolution of mercury, or mercury and gum-arabic in any form, or calomel. The more acrid mercurials, having a tendency to irritate the bowels, and run off by ſtool, or to eſcape through the cuticular pores; though they may have their uſe in ſome caſes, and

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in ſuch conſtitutions as are neither ſo irritable or debilitated, cannot in general have a place here, as an unheeded application of cold may alſo determine them to excite a morbid flow of ſaliva, when nothing more was meant, than, by keeping the mouth ſore, to aſſure its operation on the ſyſtem, by this teſtimony of its having entered the lymphatics.

But could not this be better effected by the application of mercury in the form of vapour, in the caſe of obſtinate ulcers, or for the reſolving an indurated gland, &c. and with leſs danger of morbidly affecting the ſalivary glands, in patients already ſo ſeverely and recently afflicted in the mouth and gums?

It muſt be allowed, that this mode of applying mercury has its inconveniencies; it is ſo very ſubtile and ſudden in its effects, as not to be truſted in any but medical hands, who know how to avail themſelves of its immediate action on the affected parts.

Cinnabar, a compound of ſulphur and mercury, the ſubſtance uſually employed, from being reſolved into fume; the mercury and ſulphur are diſunited, on which the activity of the medicine is ſuppoſed totally to depend. But we are of opinion, that part of the ſulphur, burned during the fumigation ariſing in vapour, is rendered acid, and from its re-union in this form with the mercury in a ſtate of vapour alſo, renders it corroſive; to which

we may, in ſome degree, attribute its beneficial effects on obſtinate ulcers. Here the mercury may be conſidered as in a kind of ſaline vapour or fume, partially cauſtic, and acting as a peculiar kind of eſcharotic. Its action on the circumjacent ſound parts may be prevented by previouſly oiling or greaſing them, which at the ſame time prevents its entering the ſyſtem by abſorption.

Mercurial pills ſeem, in moſt caſes, entitled to a preference; not that they are leſs apt to excite a ſalivation than mercury exhibited by unction, or any other means; but that the quantity of mercury introduced into the ſyſtem admits of being more accurately aſcertained; eſpecially when the degree of ſolubility in the ſtomach can be alſo aſcertained by the mercury having been combined with vegetable mucilage, which alſo ſheaths and moderates its action on the guts.

Experience has produced many inſtances of real advantage, in employing mucilaginous matters along with mercurials, in preventing diarrhœa and ſalivation to a remarkable degree: ſo far Mr. Plenk's ſolution of mercury is a good medicine.

Mr. Plenk of Viena's mercurial ſolution.

Take of purified quickſilver, j. 3.
Gum arabic, ij. 3.

Beat

Beat them in a ſtone mortar, adding by little and little, diſtilled water of fumitory, till the mercury thoroughly diſappears in the mucilage. Having beat and mixed them well together, add by degrees, and at the ſame time rubbing the whole together, ſyrup of kermes half an ounce, diſtilled water of fumitory eight ounces. It is always moſt expeditious to triturate the mercury with the gums in a ſtate of mucilage. The doſe from half a ſpoonful to one or two ſpoonfuls; always agitating the phial well before taking the ſolution.

Mr Plenk's mercurial pills.

Take of the pureſt quickſilver, j. ʒ.
Gum arabic in powder, ij. ʒ.
White ſugar, ij. ʒ.

Pure water, a quantity ſufficient to make the gum into a ſtrong mucilage, and as much powdered liquorice as will make the whole into a maſs of the ſubſtance of pills; of which make ninety-ſix pills, each of which will contain five grains of crude divided mercury. From three to five or more may be given in the twenty-four hours; that is, one or two in the morning, and two or three at night. This form may, upon the whole, be conſidered, although not a powerful, yet, in many caſes, an uſeful preparation.

Calomel, although the mildeſt of the ſaline

preparations, is a more general ſtimulant in the ſyſtem than they: from this general ſtimulant power it may be readily ſuppoſed to affect the inteſtines more conſiderably than they do, and, in fact, is found, in many caſes, more readily to excite looſeneſs than they do.

Calomel cannot be conſidered as well adapted for thoſe inveterate and obſtinate caſes, in which a long and gradual uſe of mercury is requiſite, and to overcome which it is neceſſary that a conſiderable quantity ſhould be accumulated in the circulating ſyſtem.

Many ſubſtances that poſſeſs the moſt active powers in nature, have theſe entirely deſtroyed, or totally altered, ſtom a combination with other ſubſtances. This holds remarkably of mercury itſelf, when united with ſulphur. Taken ſeparately, they are each of them of a moſt active nature; conjoined, the mixture becomes inert, or acts merely as ſulphur. We are naturally led, from what has been delivered, to ſay ſomething further on the

Treatment of Ulcers.

From what we have experienced, and from what we can learn, we are led to believe, that thoſe obſtinate ſcorbutic ulcers, which have led us into ſo long a diſcuſſion of the mild mercurials, are more expeditely cured by our antiſebrile and antiſcorbutic powders, No. 1, with the occaſional addition

of

of No. 2, of the latter, opium and bark. And in moſt caſes, by the ſole uſe of thoſe powders, unaſſiſted by any other medicine.

To begin with thoſe of the mouth; we have already recommended the liberal uſe of certain lozenges and gargles, before enumerated, to which we beg leave to refer, and with which the ulcerations of the mouth and gums ſhould be frequently cleanſed. The fungus excreſcences not relieved by this means, muſt be removed by the knife. And where the ulcers appear deep and ſpreading, they are to be touched with ſpirit of vitriol, as ſtrong as the patient can bear it, which in general will check their progreſs.

Ulcers on the legs, or any part of the body, require ſimilar treatment; gentle compreſſion, removal of the fungus fleſh, with lotions of the ſame compoſition as the gargles. Few applications are of greater ſervice in the healing ſuperficial ulcers than dreſſings of lint dipt in a ſolution of corroſive ſublimate, in the proportion of half a grain to an ounce of water, with a very ſmall addition of compound ſpirit of lavender, to give it an agreeable ſmell and ſcent. Perhaps no external application is equal to ſolution of the antiſcorbutic powder, No. 1 and 2, or a mixture of them, ſprinkled on the large ulcers, to prevent the ſpreading of ſome and reduce the callous lips of others.

Thoſe troubleſome wandering pains, common to ſcorbutics, which indiſcriminately ſeize the ſoft and hard parts, ſometimes with, at other times without a ſwelling, although originating in the ſame cauſe, ſometimes require a different treatment, either from the different parts they attack, or the length of their duration.

But the pains which affect both the ſoft and hard parts, uſually yield to a proper diet of the nutritive kind and our diaphoretic remedies. If they ſhould not, bliſters applied to the parts affected, if above the knees, commonly prove ſucceſsful.

It is better to avoid putting bliſters on the legs in this diſeaſe, from the frequency of their being followed by ulcers. Ulcers on the legs being much more difficult to cure in theſe, than in other parts ſeated higher up.

They do not ſo effectually relieve the pains in and about the joints of the knees, from a vitiated ſenovia, or extravaſated humours, corroding the circumjacent parts. Whether between the capſula of the joint, the joint itſelf, or between the perioſtium and the bone, ſhould be let off by a pending paſſage made by inciſion, before the bone is affected and caries has formed. But how ulcers, with or without caries, are to be treated, is the province of ſurgery.

Altho' the antifebrile and antiſcorbutic pow-

ders

ders are ſo ſucceſsful in relieving pain and ſpaſm, and in uſually healing internal and external ulcers, whether aſſociated with fevers, fluxes, or the ſcurvy; yet they cannot be expected to be infallible.

The incurable ſtate of ulcers, proceeding from the ſcurvy, and other cauſes in hot climates, may probably depend on the defect of a freſh ſupply of aſſimilated juices; and from the unfitneſs of a ſeaman's food, and his weakened digeſtion being unequal to the production of a good wholeſome aſſimilable chyle, a proper ſuppuration is prevented by the depraved ſtate both of the veſſels and fluids. We cannot expect the renewal of ſolid parts, in which healing conſiſts, where both the inſtruments and materials of its formation are ſo defective. Hence the ſmalleſt pimple, or ſligheſt ſcratch, more eſpecially on the lower extremities, uſually ſpreads, and becomes an incurable ulcer.

Sores, in whatever way produced, ſpread quickly, and form a large ulcerated ſurface. They give little or no pain, which appears to be owing in a great degree to the warmth of the air; for cuts and wounds are found to give much leſs pain in a warm than in a cold climate.

The appearances of the ulcers are continually varying; at times they acquire the look of a healthy ſore, ſend forth ſtrong and luxuriant

granulations, and begin to ſkin over; but one night will often put an end to this flattering proſpect. The granulations turn flaccid, or even mortify in part; the portion ſkinned over ulcerates afreſh, and the ſore becomes larger than ever. After a time it will again put on a healing appearance, and repeatedly run through the ſame ſtages. The bones at laſt become carious, and if the limb be not amputated, or the patient returned to Europe, he becomes hectic, and, after lingering a conſiderable time, dies. Dr. Hunter further obſerves, the general reſult of all his experience was, that ulcers of ſome ſtanding, and of a conſiderable ſize, in the lower extremities, could not be healed in Jamaica by any means they were acquainted with. Inſtead therefore of waſting time in fruitleſs trials, every opportunity was taken of ſending home the men with ulcers along with the other invalids. The change of air and climate produced great effects; many of the ulcers healed on the paſſage, and all of them ſoon got well after their arrivial in England, unleſs where the bones were carious; and of theſe laſt many recovered, after loſing large portions of the tibia by exfoliations, or were finally reſtored to health by amputation of the diſeaſed limb. This operation was indeed ſometimes performed on the iſland, but never except under the moſt urgent circumſtances, for it ſeldom ſucceeded,

ceeded, owing to the *locked-jaw*, which generally came on in a few days, and proved fatal. See *locked-jaw*.

It may be remarked, ſaid Dr. Blane, that altho' all ſores and wounds in the foot and legs are difficult of cure, in a hot climate, I have obſerved, that where the conſtitution is good, theſe in the thighs, arms, and trunk and head, are rather more eaſy of cure than in Europe, and that parts divided by inciſion very readily unite by the firſt intention. In reaſoning upon this, it may be ſaid, that as healing depends on a certain degree of vigour in the powers of life, this ſhould not err either on the ſide of exceſs or defect. If it is too great, as in the caſe of a hale, plethoric conſtitution in a cold climate, too much inflammation is apt to be excited; if too feeble, as happens in a hot climate, in the lower extremities, which are far removed from the ſource of life and circulation, the ſalutary effort is not ſtrong enough to generate new organized parts. But in the trunk of the body, in ſuch a climate, the powers of the animal œconomy are in that juſt medium which is moſt favourable to this operation of nature.

Ulcers in patients labouring under the ſcurvy have been ſucceſsfully cured by the antifebrile powders, No. 1, adminiſtered internally, and judiciouſly combined with the dreſſings.

Ulcers proceeding from various cauſes, not ſcorbutic,

ſcorbutic, of long ſtanding, and given up as incurable while the patient remained in a hot climate, with thick edges, large funguſes, and an ichorous diſcharge, that had rather been aggravated than relieved by a courſe of mercury, and that had from their irritation and conſtant drain, worn out and emaciated the patient to the loweſt ebb, were affected in a wonderful manner, equally unaccountable and incredible, by the internal and external uſe of theſe powders. Sometimes No. 2, at other times No. 1. ſucceeded beſt; and not unfrequently the alternate uſe of both ſucceeded ſtill better, in calming the morbid irritability, procuring eaſe and reſt, and producing a ſalutary change in the ſores. In many caſes their effects were immediate, in others more gradual, and in moſt that fell within our obſervation, permanent in their effects, and ended in a cure.

The general mode of exhibiting them was a few grains at morning, and a double portion at night, gradually increaſed according to the urgency of the ſymptoms; and in ſome caſes to the quantity of xx grains in the morning, and xx grains at night, which is two-thirds of a packet in the twenty-four hours. In moſt, the cure was performed without any ſenſible evacuation, except by urine and perſpiration. In all, the diſcharge of the ulcers was changed from a putrid ſanies to a pus, more or leſs laudable in appearance;

appearance; and the callous edges, and funguſes of the ulcers, ſoon yielded to the dreſſings, during the internal courſe of the antifebrile powders.

Ulcers, whether in patients ſcorbutic, or not, that were not abſolutely cured, were not only ſtopped from ſpreading, but reduced in ſize and appearance, and the patient relieved from pain and inquietude; but were all brought to a laudable diſcharge, and the patients ſurpriſingly recovered their fleſh and ſtrength, under diſcharges, by no means inconſiderable, from their ſores. For further particulars, ſee *wounds*, and *amputations* under *Tetanus* and *locked-jaw*. And alſo under the diſeaſes of Negroes, who ſucceſsfully dreſs wounds, ulcers, &c. with palm-wine and lime-juice, and palm-oil and lime-juice, &c.

A very particular ſymptom of the ſcurvy is mentioned by Mr. Telford, in his letter to the phyſician of the fleet. Of four patients, he had two that were almoſt blind towards evening, accompanied with a head-ach, vertigo, nauſea, and a ſenſe of weight about the precordia. The pupil was then extremely dilated, but contracted readily when preſented to a ſtrong light.

Two of them had the ſcurvy in a high degree, one of them ſlightly, and the other ſeemed entirely free from it. He obſerved, that he was not then well acquainted with the nature and cure of this diſeaſe,

diſeaſe, which he believed was called *Nictalopia* by ſome ſyſtematic writers. *

He adminiſtered an emetic, that brought up a great deal of bile, which relieved both head and ſtomach; that encouraged him to a repetition, which was alſo attended with great benefit. He applied bliſters behind the ears, and gave bark and elixir of vitriol, with the antiſcorbutic courſe.

He had 114 ſcorbutic men, who contracted the ſcurvy in a long cruize at ſea, recovered by the uſe of limes. A pint of wine mixed with an equal quantity of water, made agreeable with ſugar and tamarinds, was ſerved to each man daily.

† The ſcurvy did not make the ſame progreſs in the ſhips at anchor as at ſea. The difference aroſe in having plenty of freſh water, not only to drink, but to waſh their clothes; cleanlineſs tending greatly to ward off the ſcurvy, though freſh meat nor vegetables were not procurable. Sugar, a very good antiſcorbutic, was obtained by the men, in exchange for their ſalt proviſions. Added to this, the diſmal uniformity of a ſea life, favourable to indolence and ſadneſs, haſtens the progreſs, and aggravates the ſyſtems of the ſcurvy. Whilſt in port, a change of ſcene and variety of objects, by chearing and recreating the mind, averts the diſeaſe.

* Dr. Nathaniel Hulme.

† See this enlarged on in the concluſion.

Wine,

Wine, molaſſes, ſugar, *ſouer-crout*, and eſſence of malt, are equally good as preventatives, and curatives in the ſea ſcurvy. Mr. Smith, ſurgeon of the Triton, obliged his ſcorbutic men to eat raw potatoes ſliced with vinegar, with great benefit.*

The acid fruits, or their juices, eſpecially of limes, lemons, oranges, ſhanodocks, pomegranates, caſhew-apples, and all the ſubaſtringent fruits; and all the culinary vegetables in a freſh ſtate.

Malt, ſpruce, or even turpentine (the two laſt make a wholeſome antiſcorbutic drink,) with ſugar or molaſſes and water, perhaps ſuperior to the former, particularly in cold latitudes, as obſerved by Dr. Clerk. Yeaſt in a portable ſtate, in cakes or bladders, may be wanting, eſpecially in a cold climate; in a hot, this can never be the caſe, as beating the materials and water up with a birch broom at firſt, and repeating it occaſionally, will excite a fermentation, the dregs of which will ſerve for any future brewing. A ſmall quantity of *palm-wine* will promote a vigorous fermentation. The treatment is ſimilar to brewing in a family way.

As to the preservation of orange, lemon or lime-juice, &c.†

The orange merchants in London preſerve

* Dr. Blane.

† Dr. Nathaniel Hulme.

their

orange-juice very ſucceſsfully, for ſeveral years together, by the following eaſy method: they take ripe fruit, no ways damaged, and ſqueeze it very dexterouſly over the head of a large caſk, which is hollowed out for the purpoſe, and pierced full of ſmall holes, that the juice may run through, and the ſeeds remain behind. When the veſſel is near full, they take up the juice, and paſs it through a hair ſieve, and put it into a rum or brandy puncheon, ſet on one end, for the convenience of drawing of the clear juice from the ſediment, provided with a cock ſome inches above the bottom, and vent ſpile at top.

The latter end of January, or beginning of February, is the beſt time for ſqueezing the juice. In about three or four weeks, the juice purifies itſelf, by throwing to the bottom a thick ſediment; and raiſing up to the top an uniform tough ſcum, two or three inches thick; from between which, the clear juice is drawn off.

How long the ſimple juice, prepared in this way, will keep at ſea in caſks, I cannot ſay; but in all probability, it will keep as well as moſt kinds of wine. Of this juice, an ounce and a half a day is preſumed to be a ſufficient quantity. *Kramer*, a man of great experience in the Scurvy, directs the pulp and juice to be preſerved with ſugar, and given

given to the quantity of three or four ounces a day, in the form of marmalade, lemonade, or mixed with whey.

With regard to keeping in caſks, Boſman ſays, they buy lime-juice at twenty-five ſhillings an aum, at St. George d'Elmina, the Dutch ſettlement on the Gold coaſt, and ſend annually two hundred aums a year to Holland.*

It is neceſſary to obſerve, that the juice of oranges and lemons ſhould never be mixed or prepared together in the ſame veſſel, but always be kept ſeparately. The juice of lemons, managed in this manner, though it remains quite clear and good, yet does not preſerve its flavour ſo well as orange-juice; for which reaſon, the dealers in theſe articles univerſally preſerve the orange-juice.

Rob of lemon or lime-juice, &c.

Dr. Lind propoſes evaporating the watery part, ſo that the acid of twelve dozen of oranges or lemons may be put up in a quart bottle for uſe. For which purpoſe it may be depurated in a ſimilar manner to that deſcribed, and the clear juice evaporated, either by the heat of the ſun in a hot climate, or by the aſſiſtance of a fire in a cold one. When cool, it ſhould be of the conſiſtence of ſyrup; this he calls the rob of lemon or orange-juice;

* Boſman's Hiſtory of Guinea.

ſome

ſome of which rob, or extract, he kept by him for four years.*

This rob is nearly as good for making punch or lemonade, as the freſh juice. To preſerve the fragrance of the fruit, he found a ſmall quantity of the outer rind or peel, added to the rob juſt before it was removed from the fire, quite ſufficient; inſomuch, that the niceſt taſte could not diſtinguiſh the difference. The medical qualities are not at all impaired, but only concenterated into one-eighth of its bulk. Two dozen of good oranges weigh five pounds four ounces, yield one pound nine ounces of juice, and make five ounces of rob, or extract, in bulk leſs than three ounces of water; ſo that the acid of twelve dozen of oranges or lemons may be put into a quart bottle, and preſerved for ſeveral years.†

It is a common practice in Africa and the Weſt Indies, to expoſe the depurated juice of lemons, limes or oranges, to the heat of the ſun, to evaporate the aqueous parts for the uſe of their friends to take to ſea. The heat of the ſun ſoon ex-

* If this operation be carefully performed by a very gentle heat, as the juice heats, the mucilage thickens and ſeparates in the form of flocks; part of which ſubſides, and part riſes to the ſurface; theſe muſt be taken out: the vapour that riſes is not acid.

† Dr. Lind on the Scurvy.

hales

hales the ſuperfluous watery part. When large quantities are wanted, a ſand-heat and a ſhallow glaſs veſſel will be the moſt expedite proceſs; and when cool, let it be well corked up in bottles for uſe.

Dry Lemonade.

To the depurated juice of lemons, limes or oranges, evaporated to the conſiſtence of ſyrup, rob, or extract, add ſix times the weight of loaf ſugar, and keep the whole ſtirring till perfectly dry; by this means the maſs will be reduced to a fine powder, which ſhould be bottled up when cool. This lemonade powder may be rendered ſtill more elegant, by rubbing the fruit againſt the loaf ſugar, and as it receives colour and imbibes the eſſential oil of the peel of the fruit, ſcrape it off with a knife from the piece of ſugar, and repeat the rubbing with freſh fruit until enough is obtained to flavour the quantity of lemonade powder intended to be made. This fragrant powder is to be thoroughly mixed with the lemonade powder before it is put up for uſe.

The ſame may be done with the powder ſugar impregnated with the eſſential oil, with reſpect to the rob, when intended to be preſerved in a liquid ſtate.

The depurate juice may be alſo impregnated

in this manner, with this fragrant aromatic eſſential oil imbibed by the ſugar, when the proceſs is intended to be carried no farther.

In a cold climate and without heat,

The lemonade powder may be obtained in great perfection by expoſing the depurated juice to about ſeven or eight degrees of cold below the freezing point. The aqueous parts will freeze, and the ice may be removed as it forms; if the proceſs is continued until the ice begins to exhibit ſigns of acidity, the remaining acid will be found to be reduced to about one-eighth of its original quantity; at the ſame time, its acidity will be eight times as intenſe, as is proved by its requiring eight times the quantity of alkali to ſaturate an equal portion of it. This concentrated acid may be kept for uſe, or if preferred, it may be made into dry lemonade, by adding ſix times its weight of loaf ſugar in powder.

The above proceſs may be uſed when the acid of lemons is wanted for domeſtic purpoſes, and for medical uſe, as in the intention propoſed for the relief of the ſcurvy, becauſe they leave it in poſſeſſion of the oils and other principles on which its flavour and fragrance peculiarly depend; but in chemical reſearches, when the acid itſelf is required

to

to be had in the utmoſt purity, a more elaborate proceſs muſt be uſed. See this proceſs at the latter end of the remarks on the bile and application of acids, in the cure of fevers and the ſcurvy, with obſervations on vinegar, &c. *Page* 210.

Acid of Tartar.

To one pound of cream of tartar diſſolved, or boiled in ſix pounds of water, add a quarter of a pound of ſtrong oil of vitriol, by little and little at a time. When a complete ſolution is obtained, the fluid will then contain diſengaged acid of tartar, together with vitriolated tartar, or the neutral ſalt, formed by the union of the vitriolic acid, with the vegetable alkali of the cream of tartar. The vitriolated tartar, being a ſalt of ſparing ſolubility, will be precipitated by continuing the boiling: when the liquor is evaporated to one half, it is to be filtered; and if upon further evaporation any thing more is precipitated, it muſt be filtered again. The clear liquor being then reduced to the conſiſtence of a ſyrup, and ſet by in a temperate or rather warm place, will afford fine cryſtals of tartareous acid, equal in weight to half the cream of tartar employed.

If too ſmall a quantity of vitriolic acid has been uſed, part of the cream of tartar will not be de-

compoſed, but will ſeparate from the liquor along with the vitriolated tartar; it is better therefore to uſe too little, rather than too much oil of vitriol.

The cryſtals of acid of tartar do not change by expoſure to the air; they are much more ſoluble in water than cream of tartar itſelf.

Theſe acid cryſtals are convertible into vinegar, by digeſtion with water and ardent ſpirits.

Sawerkrawt, or Zourhool.

In the month of November, take the white winter cabbage, cut it into quarters, and remove the ſtalk that runs in the middle of it, then ſhave it with a large ſharp knife into as thin ſlices as poſſible; the Dutch, who are great conſumers of *ſour-crout*, have an inſtrument for the purpoſe; the thinner the cabbage is ſliced, the better it will be preſerved.

Greaſe then the inſide of the caſk, ſo as to ſtop up all the pores, and cover the ſides and bottom with a thin paſte of leavened flour; on the bottom ſtrew firſt a little ſalt, then fill up the caſk with alternate layers of ſalt and ſliced cabbage, until it is near full. The quantity of the ſalt between each layer of the cabbage muſt be very ſmall, and care ſhould be taken that each layer of the cabbage, upon

on being put into the caſk, be well beat, and ſtrongly preſſed down by a wooden peſtle or mallet, ſo that 200 cabbages may be put into a ſmall caſk; on the uppermoſt layer of cabbages put a cloth, and immediately above that a tight wooden cover, ſo as no air may enter; above this cover, put a conſiderable weight to preſs the cabbage down.

When it has ſtood thus for a fortnight, and the juice of the cabbage has collected at the top and becomes ſour, dip a clean cloth in the juice repeatedly, and wring it out, until in this manner all of it is removed; then after being waſhed, the former cloth and cover are to be replaced, and the preſſure renewed, which operation is to be repeated occaſionally as the juice becomes offenſive, pouring each time a ſmall quantity of water on the top, in place of the offenſive juice, which is thrown away.

This ſour-cabbage will keep good for an Eaſt India voyage; Dr. Lind, from whoſe treatiſe on the ſcurvy we have extracted it, ſent a ſmall caſk of it to Newfoundland, and in eight months afterwards, had part returned good and well flavoured.

With *portable ſoup* and this ſour-crout, a good broth can be made at ſea, nearly equal to the hoſpital ſoups made for the recovery of our ſcorbutic patients. A meſs of this boiled in the ſailors

peaſe twice a week is a good preventative, and the above ſoup a good reſtorative for the incipients and convaleſcents.

The frivolous objection of its being ſalt, and for that reaſon ſeptic, is ill founded; the contrary is the truth: vegetables preſerved in this manner are ſour, tart, or agreeably acid, and prove an antiſeptic corroborant food. A good many caſks of this, and a few boxes of portable ſoup, are a requiſite addition to the *victualling bill* of every ſhip bound on long voyages and long cruiſes.

Vinegar is an agreeable wholeſome condiment, and a mild efficacious medicine, in all kinds of inflammatory and putrid diſeaſes, either internal or external; in ardent bilious fevers, peſtilential and other malignant diſtempers, it is recommended by Boerhaave, Lewis, Far, and many others of note, as one of the moſt certain ſudorifics, antiſeptic, ſtimulant and tonic medicines.

Fainting, vomiting, hiccoughs, hyſterical, hypochondriacal and lethargic complaints, are frequently relieved by vinegar applied to the mouth and noſe, or received into the ſtomach.

Lethargic perſons are oftener excited more effectually by vinegar blown into the noſe, than by far the more pungent volatile ſpirits. Boerhaave obſerves, that this acid in a peculiar manner counteracts

teracts the effects of ſpiritous liquors.* It has been uſed internally in the rabies canina.

As a menſtruum, it is often uſefully employed in extracting the virtues of other articles. In combinations, it compoſes ſome potent medicines. In every point we can view it in, it is ſo generally uſeful at ſea, that the preſerving it for a length of time is an object of ſome importance.

Neumann obſerves, that vinegar that has undergone a conſiderable degree of heat, will not keep long. A modern chemiſt, ingenious in his mode of enquiries, ſucceſsful and happy in his diſcoveries,† propoſes to preſerve this uſeful acid in a ſound ſtate, by expoſing it to a boiling heat.

He, after obſerving, as many others have done, that diſtillation renders vinegar unchangeable for years; this it does by ſeparating it from its groſs mucilage, &c. that it may be concentrated by freezing, and laſtly, that keeping it cloſe corked up in bottles from acceſs of air, which he at the ſame time rejects, from the vinegar ſpoiling when each bottle is opened, except kept filling up, which is troubleſome, propoſes the following eaſy method

* The ſame opinion for a long time prevailed with reſpect to opium. John Leigh, M. D. in his treatiſe on Opium, found that vinegar, given previous to the opium, but not after it, counteracted its effects on the ſtomach. It is not improbable that the ſame may apply to ſpiritous liquors.

† *Scheele.*

Of preſerving Vinegar.

It is only neceſſary to boil your vinegar for a quarter of a minute over a ſtrong fire. It is then to be immediately bottled up; or the bottles ready filled may be put in the kettle of water on the fire; and after the water has boiled for about an hour, the bottles are to be taken out, and corked up immediately.

The vinegar, he obſerves, thus boiled, keeps for ſeveral years, even in half filled bottles, or in the open air, without growing turbid or mucilaginous: it likewiſe may be uſed with advantage for pharmaceutical purpoſes, inſtead of common vinegar, which if not diſtilled, ſoon grows turbid, and loſes its acidity.

We ſhall not preſume to comment on this eaſy proceſs, as we are no admirers of analogous reaſoning on what has been or can conveniently be reduced to experiment; eſpecially on the experiment of ſo faithful a recorder of facts as our author.

Inſtead of which, I am free to acknowledge the infertility of my genius: though much occupied in the ſtudy and manufacture of vinegar, it is more than probable that this ſimple method would never have occurred to me.

Yet this is the common proceſs of every houſewife, in the preparation of pickles for family uſe. This puts me in mind of Columbus's egg!

Our

Our carboys, employed for holding oil of vitriol and the mineral acids, fitted with ground ſtoppers, and packed as uſual for exportation, that hold from ten to fifteen gallons, promiſe to afford a commodious containing veſſel, and ſafe package for ſhipping the boiled vinegar, either to be uſed at ſea, or tranſported to any diſtance whatever.

Dr. Lind ſomewhere obſerves, that a few ſlices of lemon give a caſk of vinegar an agreeable lemon-juice flavour. This being the caſe, nothing can be more eaſy than to impregnate the boiled vinegar with ſuch a flavour.

Decoction of the woods.

Take of guaiacum ſaw-duſt or ſhavings iiij ℥
Sarſaparilla root, ſliced and bruiſed ij ℥
Bark of the root of ſarſafras,
Bark of the root of mezereon.
Caſcarilla bark, powdered. } of each, jv ℥
Liquorice root ſliced and bruiſed, ij ℥
Water ſix quarts.

Macerate for ſix or eight hours in a gentle heat, then ſlowly boil the fluid down to ſix or eight pints. Add towards the end of the boiling the mezereon and ſarſafras roots, with two ounces of caſſia ligna powdered or well bruiſed.

This decoction, given from half a pint to a quart a day alone, or diluted with barley water, water gruel, rice water, or negus, for thoſe to whom it may be too ſtrong, will greatly promote the diaphoretic quality of our medicines, and is of itſelf a good

a good antiſcorbutic, deobſtruant purifier of the blood, and promoter of the natural excretions.

Dr. John Clark, in his Practical Obſervations on long Voyages, and in hot Countries, gives the following methods of making *Porter Beer* and *Tartar Ale*.

Porter Beer.

Take of porter two quarts.
Grated ginger, ij ʒ.
Soft ſugar, viij ʒ.
Water four quarts.

Put the liquor into ſtrong bottles, and cork them well. One bottle may be uſed daily for drink, and another made into panado for breakfaſt and ſupper. This was recommended by his late friend Sir John Silveſter.

Tartar Ale.

Take of crude white tartar, powdered, iij ʒ.
Juniper berries bruiſed, jv ʒ.
Lemon peel, j ʒ.
Ginger in powder, ij ʒ.
Cloves in powder, j ʒ.
Coarſe ſugar, v lb.
Water ſix gallons.

Boil them half an hour, then pour the whole into a tub; and when nearly cold, paſs the liquor

quor through a ſtrainer into a ſix gallon caſk. If it do not ſoon ferment, add half a pint of porter. It may be given a few hours after the fermentation has begun, from one pint to two quarts daily.

Although it does not appear that either of theſe drinks fully anſwered Dr. Clark's expectations, they no doubt afford a wholeſome antiſeptic ſtimulant beverage. The firſt was made freſh every day, and by mixing a bottle of the old liquor of the firſt ingredients, its briſkneſs was much heightened. It ſoon runs into fermentation, and generates much fixed air.

* Among the various theories concerning the cauſe of this diſeaſe, and the mode of operation of its remedies, none, when I entered upon the practice, ſeemed ſo ingenious and plauſible, as that of the late benevolent Dr. M'Bride.

The ſcurvy, by the united conſent of phyſicians, was conſidered a putrid diſeaſe. By a number of well conducted experiments,† he endeavoured to prove, that *fixed air* is the cementing principle of all bodies, vegetable as well as animal; and that living animal ſubſtances become putrid from the eſcape of this ſubtile vapour.

* *Dr. John Clark's Obſervations on the Scurvy.* Book II. on Long Voyages, &c.

† M'Bride's Experimental Eſſays *paſſim.*

The

The cure of the ſcurvy was alſo known to yield to nothing certainly, but to freſh vegetables, whether *acid* or *alkaline*, *mild* or *acrid*, *ſweet* or *bitter*. By various experiments, this ingenious phyſician found that vegetables, however oppoſite their ſenſible qualities appeared, all poſſeſſed one common property, *viz.* that, when mixed with animal ſubſtance, and placed in a proper degree of heat, they ran into fermentation, and threw off a conſiderable quantity of *fixed air*, endowed with the power of correcting putrefaction, and reſtoring ſoundneſs to corrupted animal ſubſtances.*

Having by experiments alſo made it probable, that the cure of the ſcurvy depended entirely upon the fermentive quality of the vegetables employed, he judged that any ſubſtance, proper for food, abounding with fixed air, which would keep long ſound, and take up little room at ſea, would prove a convenient and powerful antiſcorbutic.

Wort, or an infuſion of malt, from containing a great quantity of fixed air, he ſuppoſed ſimilar in its qualities to freſh vegetables; and therefore propoſed *dried malt* to be kept in conſtant readineſs on board ſhips as a remedy, whenever this deſtructive diſeaſe made its appearance.

Captivated by the ingenuity of this theory, I was glad to be informed, when the ſcurvy appeared

* Vegetables derive this advantag from their native acid and their fixed air. See page 250 to 260, &c. of this Treatiſe.

amongſt

amongſt the crew of the Talbot off the Cape, that there was a caſk of malt on board; and ſtill more ſo, to find it was perfectly ſound. As the quantity ſeemed ſufficient only to give a full trial in a few caſes, ſix patients were ſelected, and the wort was made by pouring three meaſures of boiling water on one of freſh ground malt. After ſtanding four hours, the liquor was ſtrained, and one bottle given to each patient; which, as it agreed perfectly with the bowels, was ſoon increaſed to two quarts daily.

There being no live ſtock on board, the dinner of the patients conſiſted of boiled rice with ſugar, and a little wine; and for breakfaſt and ſupper, they had each a pint of panado, made with powdered biſcuit and wort.

Two of the patients continued the wort and the above regimen regularly for eighteen days. I narrowly watched the progreſs of the ſymptoms; but had the mortification of obſerving the diſtemper to increaſe daily, and the patients to become weaker and worſe than thoſe who were put upon other articles of regimen.

Having a little lemon-juice on board, the patients whoſe caſes were fartheſt advanced, after they gave over the wort, were allowed two ſpoonfuls thrice a day, and ſome of them along with the lemon-juice were ordered one drachm of bark every four

four hours. Whilſt this acid laſted, the diſeaſe remained ſtationary; but the weather being extremely ſtormy, the hammocks wet, and the ſhip dirty, no progreſs towards recovery could be perceived, nor indeed expected.

All the others ill of the ſcurvy had the uſual medicines which are given at ſea, calculated, indeed, only to ſupport hope, or at moſt, to palliate ſome particular ſymptoms; the chief of which were gentle laxatives when coſtive, diaphoretics at bed-time, bitters with vitriolic acid, fermentations, and antiſeptic gargles.

They were ſupported with as cordial a diet as the ſhip could afford, ſuch as boiled ſago and rice, with ſugar and wine: the laſt article was, indeed, diſtributed with the greateſt liberality and humanity by Sir Charles Hudſon, and *mamgo ſhrub* was given to ſeveral by the officers, in ſuch portions as was deemed proper.

The diſeaſe, however, daily increaſed; and when we came to anchor at Madagaſcar, many were ſo weak, that it was judged unſafe to ſend them on ſhore for ſome days. But ſtill it afforded great conſolation, after a voyage of nineteen weeks, and a conſiderable part of the time paſſed in the cold tempeſtuous latitudes off the Cape, that we were able to preſerve the lives of the ſick, and that none fell a victim to this virulent diſtemper.

In

In our run between St. Helena and England, in the ſame voyage, two ſcorbutic patients were cured at ſea by the rob of oranges, which was prepared at Madagaſcar, taken daily in the form below.

Take rob of oranges, half an ounce.
Mountain wine, a pint.
Refined ſugar, two ounces, mix them together, and take one quart four times a day.

From the faithful relation of this candid ingenious phyſician, Dr. Clark, we are ſupported in our opinion of the neceſſity there is for bringing forward a medicine or medicines, to counteract the malignancy of the ſcurvy at ſea, that ſhall approve itſelf the moſt ſanative and leaſt expenſive *bracer* of the animal fibres, compoſing the relaxed ſolids of debilitated ſcorbutics, equally fit to *correct* the broken down craſis of the blood, and that may check the too abundant degeneracy of *the ſeptic animal proceſs*, and promote the mutual and natural action and reaction of the ſolids and fluids upon each other: for upon the whole, as truly obſerved by Dr. Lind, the caſe of ſcorbutic patients appears plainly to be a weakened and relaxed ſtate of the ſolids; with ſuch a condition of the blood, as naturally proceeds from a want of proper nouriſhment, and from a ſtoppage of perſpiration.

The frequent œdematous ſwellings of their legs, ſometimes

ſometimes of their face, and of other parts of the body, denote the ſtate of their ſolids; their bleeding gums and ulcers, the condition of their blood, and their ſpotted dry and rough ſkin, prove a ſtoppage of perſpiration.

Now in ſuch a ſtate, continues the Doctor, *what is to be done?* their perſpiration cannot be well reſtored by the common ſweating medicines; for though they may give a momentary relief, and in ſome few caſes, a crude humour may be thus puſhed through the ſkin, even in ſo relaxed a ſtate of the ſolids, yet ſuch a humour goes off generally by urine.

Nor can the relaxed ſtate of the ſolids be braced up to advantage, while the juices are unſound, and aſſimilation and reſtriction wanting, ſo that exerciſe, ſtimulants, bark, ſteel, and aſtringents, will not cure them; nor will a diet of even fleſh broths remove a high and virulent degree of this diſeaſe, without the aſſiſtance of green vegetables.

We may therefore add, that it is not in a ſea regimen, or ſuch as is procurable there, that we are to expect a remedy, but in ſuch a medicine as we have been deſcribing: and that will alſo ſtrengthen and enable the organs of digeſtion to ſubdue a viſcid chyle, ariſing from ſuch diet as ſeamen are uſually obliged to ſubſiſt on, and aſſimulate ſuch nouriſhment from it as may prolong a healthy exiſtence; *as ſuch, we have already propoſed our medi-*

cine,

vine, therefore ſhall ſay nothing farther on that head here.

Dr. Frederick Thompſon, in his Eſſay on the Scurvy, has very ingeniouſly pointed out many uſeful particulars on the prevention of this diſeaſe, which deſerve due attention. This gentleman, when ſpeaking of the inefficacy of *wort*, as a preventative or cure, relates, that a lieutenant in the navy, who commanded a ſhip laſt year,* in the ſouthern whale fiſhery, informed him, that not only his people, but he himſelf, became ſcorbutic during the voyage, notwithſtanding great care had been taken in ſalting the meat, and furniſhing the ſhip with the beſt proviſions of every ſpecies; ſo that even when they returned to England, their proviſions of every kind were ſound and good, but particularly their biſcuits, which had been kept in tight caſks.

They were likewiſe provided with a conſiderable quantity of good malt, which, as ſoon as the ſcurvy began to make its appearance, they uſed very liberally, not only by drinking its infuſion, but by ſtewing it, and cooking it in different ways; and although they were a good deal on ſhore, at Port Deſire, Penguin Iſland, &c. on the Patagonian Coaſt, yet as there were no freſh vegetables

* 1789.

of any kind that they could uſe, they could not check the progreſs of the diſeaſe.

We have recited this, not ſo much to ſhew a diſapprobation of *wort*, as to corroborate what Dr. Lind, Dr. Clark, and even ourſelves, have juſt now ſaid, of the inefficacy of *regimen* alone, in the caſe of this diſeaſe; for we have already ſhewn, that we have a much greater opinion of the plentiful uſe of this, and all ſoft dilutents, particularly thoſe containing much fixed air, and all fermented liquors, eſpecially thoſe in a ſtate of active fermentation.

That able navigator, *Captain Cook*, in his paper preſented to the *Royal Society*, obſerves, that he is not altogether of opinion, that *wort* will be able to cure the ſcurvy in the advanced ſtate at ſea; yet he is perſuaded, that it is ſufficient alone, with proper attention to other things, to prevent the diſtemper from making any great progreſs for a conſiderable time. On which, Dr. Clark very judiciouſly remarks, that Captain Cook uſed the wort with ſo many other excellent preventatives, ſuch as ſour-crout, rob of lemons and oranges, portable ſoup and ſugar; it is improper to place the preſervation of his crew to that article. However, he adds, in Captain Cook's laſt voyage, during which he unfortunately loſt his life, the crews of the Reſolution and Endeavour, although they were abſent above four years from England, had not a ſingle

ſymptom

ſymptom of the ſcurvy amongſt them, notwithſtanding the wort was never uſed; and upon opening the malt and hops at the Cape, on the homeward paſſage, it was diſcovered, that they were totally ſpoiled.*

Theory, hypotheſis, and ſyſtem, in phyſic, as in the other ſciences, often have fallen under the ſtroke of experience, which, from being continually progreſſive, is therefore ſubject to perpetual change and improvement; every uſeful diſcovery adds to the common ſtock, however irregular or unſyſtematic it may be preſented, that has undergone the ordeal of experience. And we are warranted with reſpect to our medicines, from the practice of phyſicians of the firſt eminence, who have had, and ſtill have, their favourite noſtrums, which ſo far from being new or uncommon in medicine, that the truly celebrated *Staahl* and *Hoffman*, (both profeſſors of phyſic at Halle in Germany, and diſtinguiſhed chemiſts) Sir Hans Sloane, Sir Edward Hulſe, Doctor Mead, Dr. James, and many other of our countrymen, were pleaſed to keep their methods of preparing and compounding them ſecret to themſelves, while they committed their uſe to the public at large.

Many ſuch favourite ſpecifics in medicine are

* Cook's laſt voyage, and Dr. Clark on Long Voyages, &c. 1792.

adopted in the London and Edinburgh diſpenſatories, and many more in the foreign pharmacopeias. Nor are there wanting men of acknowledged abilities in the preſent practice of phyſic, who have their private *arcanas* and *panaceas*; and not a few of ſuch efficacious medicines have been purchaſed, at an expence of many thouſand pounds, by the kings of France, and other neighbouring kingdoms of Europe, not only for the benefit of the people they governed, but for the general good of mankind.

This leads me to one obſervation that materially concerns myſelf, that what I had principally in view, in the foregoing treatiſe, is not ſo much to recommend any particular medicine, or medicines, as to determine, in ſome degree, the comparative advantages of ſome of thoſe which have been found moſt efficacious in the relief and cure of the diſeaſes moſt formidable in their appearance, and fatal in their effects, to Europeans at *ſea* and in *hot climates*, particularly the *ſcurvy*.

And to prevent diſappointments reſulting from the preparation and combination of *my medicines here introduced*, the product of laborious chemical proceſſes, and compounded with medicines unavoidably dear, whoſe reputation might ſuffer from any abuſe in making them up, to the great detriment and diſappointment of both practitioner and patient,

patient, I have formed a reſolution of preparing and ſupplying them myſelf, until they become in ſuch general uſe, as to preclude the poſſibility of deception. Till then they may be had at my houſe, and at ſuch places as I ſhall from time to time name.

DISEASES IN HOT CLIMATES.

MEDICAL DIRECTIONS FOR PRIVATE USE IN THE ABSENCE OF PHYSICIANS.

THE many ſituations which the various purſuits and occupations of Europeans abroad may lead them into, remote from medical advice and aſſiſtance, together with the rapid progreſs of theſe diſeaſes, induced me not only to accommodate the language of this treatiſe, as near as I could, to the underſtanding of every reader, but at the ſame time to interſperſe as many uſeful hints throughout, as would ſerve the generality of my readers as medical directions, in the uſe and application of the medicines propoſed for the prevention and cure of

the diſeaſes to which Europeans are expoſed at ſea in long voyages, and in hot climates.

Having this object in view, I have, as far as I have been able, endeavoured at making myſelf underſtood by every claſs of readers, in a manner, I hope, ſo ſatisfactory, as leaves but little occaſion for the following addition, with the generality of thoſe, who may look over this book for medical advice; apprehending that the more generally underſtood, the more extenſively uſeful a book of this ſort muſt be.

Thoſe who are ſo happy as to be within reach of a ſurgeon, or phyſician, in theſe ſituations, will very naturally reſort to them; and thoſe who are not, or their friends about them, are requeſted to follow theſe plain directions, as nearly as the time, place, and circumſtances will admit, without being under the ſmalleſt apprehenſions, that any fatal conſequences can ariſe from ſuch deviations as neceſſity may oblige them to make, from the general plan of directions; or that any danger may enſue from miſtakes, ſo common to thoſe who have not hitherto acted this friendly part, in their own families, or among their neighbours.

The medicines are of qualities ſo ſafe in themſelves, and innocent in their operation, they may reſt aſſured, that, though half a paper, of which the packet contains three, may on moſt occaſions be

ſufficient

ſufficient for a doſe, yet one or two papers, or even the whole packet, may, and have been given for a doſe, without endangering the life of the patient.

In very urgent caſes, where I and others have been extremely ſolicitous for the life of the patient, we have given them in theſe increaſed quantities for the purpoſe. And in poultices and clyſters, the error is oftener on the ſide of ſaving or giving them in too little a quantity, than otherwiſe.

They may be juſtly reckoned among the rare inſtances of uſeful combination in medicine, happily diſcovered, and confirmed by experience, which every phyſician ſhould gladly receive, and candidly commit to a fair trial. Although neither he, nor the diſcoverer, may be able fully to account for their effects, nor ſatisfactorily explain their mode of operation.

See our obſervations on the Bark, and the compariſon between them, and other patent medicines,* where we have advanced as far as experience juſtified our progreſs. And in the introduction, where their effects and operations are reduced to the ſtandard of our own experience; a *ne plus ultra* beyond which, we wiſh not to make any fanciful excurſions. By the time the reader gets through this book, he will diſcover, from the general application of thoſe medicines to the cure of the diſeaſes enumerated in it, that he is in no dan-

* Page 147.

ger of misapplying them, by mistaking one disease for another.

Excesses of all kinds, so pernicious in the most temperate countries of Europe, are infinitely more so in the hot climates of Africa, Asia, and America. Temperance, so beneficial and conducive to health in Europe, is the best preventative in those climates.

Wholesome food, such as is not mouldy, putrid, or rancid, and easy of digestion; and sound well fermented drink, as wine, cyder, beer, &c. are among the best preventatives, to guard from sickness, and consequently better than medicines in this intent.

Pure air is the most indispensable article of our existence, to the goodness of which we are more indebted for health, and the preservation of our lives, than to even food and drink.*

The muddy heat, and nightly dews, are unremittingly to be avoided in those climates, as the source of fatal diseases.

The exhalations of marshes, and muddy slimy shores, are equally pernicious, and always bring on fevers of the most malignant kind, agues, and scurvy.

Bad water is another cause of disease. Though ever so sweet, none is proper for culinary purposes,

* See pages xxi, xxii, xxiii, of the Introduction, and pages 216, 222, of scurvy, and sea and land breezes.

but

but ſuch as is fit to waſh with, that is, ſo ſoft as to lather with ſoap, and boil peaſe. Air and exerciſe preſerve health, promote circulation, and with it, all the natural ſecretions and excretions, properly managed, that is, without exceſſes, invigorate the conſtitution, and diſpoſe it leſs to the impreſſion of diſeaſe. If our ſituations or employments oblige us to paſs the day, or any part of it, in bad air, ſleep, if poſſible, in good air at night.

If belonging to a ſhip, get on board, or at leaſt at ſome diſtance from the land, in your way there, before ſun-ſet, to avoid the dews and noxious exhalations. If you cannot get on board, get under cover; if not near an inhabited place, provide the beſt temporary cloſe hut you can huddle together before the dew falls, and ſmoak tobacco, or light a fire in it, which kept up all night, will purify the air, and protect from wild beaſts, if any in the neighbourhood; and come not abroad in the morning, until the ſun has diſperſed the unwholeſome dews and vapours.

A glaſs of wine and bitters, or of wine, or ſpirit bitters, is a good preventative in agueiſh, damp and marſhy ſituations, taken before going out in the morning.

Dry clothes and cleanlineſs are a great preſerver of health. A free ventilation of air that is not damp, carries off the foul air of ſleeping rooms, and

cloſe

close apartments; and air that is not otherwise impregnated than with dampness, is much better than the confined air slept in, which is injured both by respiration and perspiration.

Avoid sitting in a current of air, however good, when heated, or you may obstruct perspiration, the well known cause of many diseases.

The same precaution should be used in sitting near a window at night, for the same reasons.

For want of due attention to such precautions, many get cold, the foundation of innumerable diseases.

Very cold liquors suddenly drank, or much cooling fruit hastily devoured, when you are overheated, obstruct perspiration, first internally, and lastly external, which, from being turned upon the bowels, is the cause of fluxes, diarrhoea, and *cholerae morbus*.

This is not intended to prepossess any one against the great luxuriancy of tropical fruits, which, moderately used, are cooling, balsamic, and refreshing to every sense; but otherwise, not only injurious but dangerous, except to scorbutics; the desire they have, and the benefit they derive from them, scarcely admit of limitation, while that urgent desire prevails, when they cannot be said to eat, but devour them; and all antiscorbutic plants, must not be allowed at first, when recently landed

in

in an advanced ſtate of that diſeaſe from on ſhip-board, in which caſe moderation muſt be enforced.

Sailors and ſoldiers on ſhore ſhould be as little expoſed, as is conſiſtent with the ſervice they are on, to night duty; and when unavoidable, they ſhould be as well fortified with good clothes, meat, and drink as can be procured, and every man ſupplied with a dram of ſome kind of ſpirits, or a draught of wine, according to the country they are in.

Sailors and ſoldiers ſhould not be wantonly expoſed to the meridian heats, which are inſupportable and dangerous in the extreme. The mornings and evenings are the only ſeaſons for labour and exerciſe in theſe latitudes.

The mornings and evenings are alſo the beſt times for a full meal. Few will find much appetite for eating in the heat of the day. But light meals, and plenty of fluids will be the beſt regimen; in which every one may, if they pleaſe, be their own phyſician, and which indeed they ought; and not ſuffer the brute creation, unendowed with reaſon, to ſurpaſs them, with no other aſſiſtance than mere inſtinct, in things ſo eſſential to health and preſervation.

Let every one who goes abroad, conſider that he has to ſtruggle with the diſeaſes common to

thoſe unhealthy climates, and arm himſelf with moderation and temperance. Independent of any thing I ſhall adviſe, they will have by much too many ſhocking mementos to remind them to be careful.

Damp fogs are the forerunners of many diſeaſes; dry fogs are more inſupportable, and excite diſeaſes more acute in the beginning, more ſwift and malignant in their progreſs, and more fatal in their effects: trees wither, and all nature ſeems to droop during their continuance; reſpiration is injured, and a total debility enſues; and the laboured reſpiration and anxiety mankind are under, particularly ſtrangers, wear a ſimilar appearance to the languid ſtruggles and laboured reſpiration of fiſh out of water. The furniture of houſes, the boards or planks of a ſhip often ſhiver, and ſhrivel up before them.

The moſt unhealthy countries have healthy ſituations in them; and the moſt healthy have their unhealthy ſpots, ſtinking marſhes, and muddy and ſlimy ſhores, vales, &c. cloſe impenetable woods, confined harbours unventilated.

The woods of them all, however delightful in aſpect, like the beautifully variegated ſerpent, conceal a ſting. Therefore, let Europeans take care how they venture much into them, as no ſport can repay the riſk, not ſo much of wild beaſts as unhealthy ſtagnate air.

Theſe

Theſe cautions apply to the men employed to wood and water on ſhore for the ſhips; a ſervice of much danger, and eaſily avoided where there are inhabitants, who are always ready to ſupply enough at a trifling expence.

New rum and new arrack have been fatal to many ſailors and ſoldiers at their firſt landing in the Weſt and Eaſt Indies, from their being ſo cheaply procured and immoderately drank; exceſſes of this kind generally produce ardent fevers.

We ſhould be careful how we moor our ſhips near ſlimy, ſwampy, ſedgy ſhores, or in cloſe unventilated harbours ſurrounded with wood, and ſtagnate air. It is much the beſt way to employ a few of the natives as a boat's crew to wood and water the ſhip, and fiſh for the ſupply of the ſhip's company, and to perfrom ſuch ſervices up unhealthy rivers as might be dangerous, or even fatal, to European ſailors.

Or contract for the cutting down wood and bringing it on board with the natives, who may alſo bring off freſh beef, turtle, and any thing elſe, inſtead of expoſing the lives of the men to night dews and chilling fogs. Freſh beef and pork in thoſe climates, if killed in the day, it is well known, would ſtink before they could be dreſſed for uſe, and can only be brought on board in the night on that account; the latter is more conveniently killed on board.

It will be ſome preſervation of health, to make the ſhip ride with a ſpring on her cable, that her ſide may be turned to the wind, whereby a free ventilation will be produced, and the foul air from the head, which is the moſt offenſive part, will not be carried all over the decks, as it muſt be when the ſhip rides head to wind.

I am of opinion, that a few practical hints are much more beneficial here than the moſt rational theory; yet this much I muſt ſay, that notwithſtanding I profeſs a ſcience,* of all others the leaſt influenced by theory, I am ready to allow theory to be the walk of genius, that has led to many uſeful diſcoveries, which have been matured and confirmed by experience.

Critical diſquiſitions, however, into the nature and cauſes of diſeaſes, have often done miſchief, and ſeldom any good. Our knowledge of the animal œconomy is hitherto ſo limited, that it enables us to make little or no progreſs in ſuch undertakings; and analogies from chemiſtry, mechanics, and other ſciences, however well imagined, or ſpeciouſly decorated, have been found unequal to the explanation of the phenomena of living bodies.

A little reflection will teach us the utmoſt

* Chemiſtry.

modeſty;

modeſty, with regard to our knowledge of ſuch things; for nature ſeems to have innumerable ways of working, particularly in the animal functions, to which neither our ſenſes can extend, nor perhaps could our intellects comprehend them.

Had we not, for inſtance, been endued with the ſenſe of ſight, nothing could have led us even to ſuſpect the exiſtence of ſuch a body as light; and there may be numberleſs other ſubtile and active principles pervading the univerſe, relative to which we have no ſenſes, and from the knowledge of whoſe nature and exiſtence we may for ever be debarred. Even the moſt common operations of the body, digeſtion, generation, &c. when conſidered in their cauſes of action and modes of operation on the animal ſyſtem, are ſo obſcure and myſterious, as to be almoſt beyond the reach of rational conjecture.

How fine and ſubtile muſt be the ſenſe of ſmelling in a dog, to be able to trace his maſter through crouds, and to a great diſtance; or how diſtinguiſhable and diſtinct muſt be the effluvia of one human being from another,* to aid this faithful animal in his attachment and purſuit!

When ſuch common phenomena in the animal kingdom are beyond the little ſpan of our arrogant comprehenſion; how deficient we muſt appear, even to ourſelves, on the exerciſe of but a little reflection,

* The perſpirable matter of the feet.

being

being but too obvious to need any comment. I ſhall leave every one to the influence of his own feelings.

Notwithſtanding this, the ſymptons of diſeaſes may be conſidered as the language in which nature addreſſes us, whoſe meaning we are to inveſtigate. We muſt not be content with merely obſerving them, any more than with ſimply remarking the phenomena of the inanimate world, but ſhould endeavour to trace them to thoſe laws of the œconomy on which they depend.

If, from a neglect of theſe uſeful precautions, the nocturnal chill, fog, or noxious vapours, ſhould have made an impreſſion on the body, a vomit of Ipecacuanha ſhould immediately be adminiſtered, if poſſible, near a good fire, and a plentiful ſweat excited after it, with the following bolus.

Take of the antifebrile powder, No. 1. xv grains, or to the quantity of 1 paper.

Syrup of garden poppies and conſerve of orange peel, ij ℈. Make them into a bolus. Give this, and cover the patient up warm until a ſweat breaks out, which encourage by a liberal uſe of wine-whey, barley-water, or any kind of tea ſweetened with ſugar and ſharpened with lemon, or lime-juice.

In default of the ſyrup, or conſerve, give a paper of the antifebrile powder; that is, xx grains, in any jelly, or mucilage, or in the crum of new bread

bread, or extract of liquorice, and proceed as before.

If, contrary to expectation, it ſhould vomit, or purge, encourage the former by a plentiful uſe of chamomile-tea; and if the latter, by weak broth, or barley-water. When it operates in this manner, it is a proof of a redundant bile, or acrid flow of humours into the ſtomach and inteſtines, which by this means will be happily evacuated.

If a vomiting without purging attends, throw up the following cliſter.

Take two papers of the antifebrile powder, No. 1, barley-water, or thin gruel, half a pint, brown ſugar, or treacle iiij ℥.

Sweet oil, one ounce; mix them well together and with a large bored gliſter-pipe; give it warm.

Care muſt be taken that the powder is well ſuſpended in the cliſter, and that the pipe ſuffers it to paſs when adminiſtered; which is the reaſon of recommending one larger in the bore than uſual.

This method will often prevent fatal conſequences. But if any ſymptoms of a low fever ſtill continue, as the head-ach, a ſickneſs at the ſtomach, chills, &c. a *bliſter* ought to be immediately applied; as theſe complaints, though ſeemingly ſo ſlight as not to confine the patient to his bed, are deceitful, and often terminate in a malignant fever.

If this fever can be brought to intermit, immediately give a quarter of a paper, that is, 5 grains of the antifebrile powder, and a quarter of an ounce of Peruvian bark, and repeat them every two or four hours, or about ſeven grains of the powder alone; repeated every two or four hours, according to the urgency of the ſymptoms; and if the air the patient is in ſhould be foul or unwholeſome, remove him into pure air, and there is no doubt of his recovery. If a ſweat intervenes, manage it by adding laudanum to the powder, as follow:

Take of antifebrile powder, No. 1, x grains,
Liquid laudanum, about, j ſcruple.
Conſerve of roſes, ſufficient to make them into a bolus. To be repeated as often as appears neceſſary, at intervals of four, ſix, or eight hours.

The firſt, ſecond, or third doſe, generally brings on an equable, ſometimes a profuſe ſweat; the patient falls into a refreſhing ſleep, and the fever often goes off.

* Whey, when it can be had, is the beſt drink to promote ſweat; made with wine, cyder, vinegar, &c. If the body is coſtive, give the following gliſter:

* See portable whey, p. 284.—And a ſubſtitute for whey, p. 244.

Take

Take of antifebrile powder, No. 1, one paper,
i. e. xx grains. Water-gruel, ſix ounces.
Brown-ſugar, and olive oil, of each an ounce.
Glauber-ſalts, half an ounce.
Make them into a cliſter, and give it warm.

For more particular and fuller directions, ſee under the head, *Fevers*, and general obſervations on fevers*; where the ſymptoms and method of cure are explained with great brevity and exactneſs, in a manner equally plain and familiar.

The ſame may be ſaid of *agues* or intermitting fevers, of *dyſenteries* or *fluxes*, of the *locked-jaw*, of the *rabies canina*, of the SCURVY, and indeed of every diſeaſe particularized in this treatiſe; all of which are treated on in ſo familiar a ſtyle, as to be acceſſible to every claſs of readers, that is, within the ſphere of every comprehenſion: to each of which heads we beg leave to refer the reader.

If the practice of phyſic had attained perfection, if every diſeaſe was defined, and the beſt method of treating it exactly determined, there would, indeed, be no occaſion for medical men; every man might then be his own phyſician: but as this moſt difficult of human arts, the *art of healing*, has not reached this pitch of human excellence, we muſt be content to truſt this moſt important concern to a claſs of men who have made it their peculiar ſtudy, and improved it by their practice.

* Page 11, to 27.

This not being the caſe, all that we can propoſe to ourſelves is to lay down what we take to be the leaſt exceptionable mode of practice, in terms the moſt intelligible, or eaſieſt to be underſtood, perplexed with as few technical terms as poſſible, which has been our aim through the whole of this work.

Dr. Blane, in his memorial to the Lords Commiſſioners of the Admiralty, 13th October, 1781, propoſed the following ſalutary alterations for the uſe of the Navy, *viz.*

I. The eſtabliſhment of a certain method and diſcipline, in order to ſecure regularity and cleanlineſs among the men, and to render the ſhips *clean* and *dry*.

II. The ſupply of fruit and other vegetables for the cure of the ſcurvy.

III. The ſubſtitution of wine† for rum.

IV. The proviſion of an adequate quantity of neceſſaries for the ſick.

V. The gratuitous ſupply of certain medicines.

VI. The curing of certain diſeaſes on board, inſtead of ſending them to hoſpitals; and,

Laſtly, The preventing of filth, crowding, and

† Had I, ſays the Doctor, known the ſalutary effects of porter and ſpruce beer, of which I have ſince been convinced, I ſhould have propoſed them as a ſubſtitute for rum.

mixture

mixture of diſeaſes in hoſpitals, by proper regulations, and by eſtabliſhing hoſpital-ſhips.

This benevolent phyſician obſerves, that 1518 deaths from diſeaſe, beſides 350 invalids, in 12,109 men, in the courſe of one year, is an alarming waſte of Britiſh ſeamen, being a number that would man three ſhips of the line; and that, from the conviction of his own experience, theſe propoſitions would ſave more than two-thirds of the ſeamen that would otherwiſe die in warm climates.

He further obſerves, that it is a rule in the ſervice, that though men are ſick, their ordinary allowance of ſalt-meat and other victuals is nevertheleſs ſerved out, and is either uſed by the other ſeamen, who ſtand in no need of it, or is waſted; now if the purſers were inſtructed to provide themſelves with certain ſpecies of neceſſaries, ſuch as Madeira wine, ſugar, rice, and dried fruit, to ſerve to the ſick in place of rum, and the common proviſions of the ſhip; ſuch a regulation would be productive of the very beſt effects in recovering the health and preſerving the lives of theſe men, who have the misfortune to be taken ill in a ſituation neceſſarily deſtitute of moſt of the comforts that can alleviate their ſufferings.

REMARKS ON SOME OF THE DISEASES OF NEGROES,

AND THEIR VARIOUS METHODS OF CURE.

THE *Yaws** is perhaps one of the moſt remarkable diſeaſes that prevail among Negroes; it is infectious, and, like the ſmall-pox, never attacks a perſon a ſecond time; it is communicated by contact, moſt commonly in the ſame way that the venereal diſeaſe is; it is ſeldom caught without ſome connection or intimate communication; it is diſtinguiſhed by numerous ſuperficial ſores of no great ſize, in each of which are ſmall ſpherical prominences, in appearance like a raſpberry; there is a general ſoreneſs and laſſitude at their firſt irruption, but no fever; the diſcharge from the ſores is more of a ſlimy mucus than matter: the length of the diſeaſe is various, extending from four or five to fifteen or twenty months.

If a negro, that has contracted the diſorder, be put in circumſtances favourable to general health; if he be not obliged to work, if he be allowed a good diet, and if he be kept clean by frequent waſhing, it

* Dr. John Hunter, on diſeaſes in *Jamaica*.

will

will run its courſe, and after a time entirely diſappear: We are not acquainted with any means of eradicating the poiſon; for though mercurials will put an entire ſtop to the diſeaſe, nay, remove every morbid appearance; yet it is only for a time; the diſeaſe is ſuſpended, not ſubdued, and it ſoon recurs again*.

It is the opinion of ſome, that there is much danger from thus interrupting the courſe of the diſeaſe by mercury, and that it becomes afterwards more obſtinate, and productive of new diſorders, as violent pains, known under the name of the *Boneache*; ſome admit the uſe of mercury, provided it be not early in the diſeaſe, and ſay, that the diſorder does not then return. The period of the diſeaſe, when it can be given with benefit, is not aſcertained with any degree of preciſion.

Reſpecting this diſeaſe, there are many deſiderata; we are unacquainted with the local effects of the poiſon, when it is firſt applied, and alſo with the interval of time between the application and the firſt appearance of the diſeaſe upon the ſkin. Both theſe points would be aſcertained by inoculation; a practice, which has been propoſed, and appears to be well deſerving of a trial in this diſorder.

It would be of great conſequence to aſcertain

* We recommend a courſe of the antifebrile powders, No. 2, alternated with the antiſcorbutic, No. 2, internally and externally.

the earlieſt period at which mercury might be given to advantage. The *Bone-ache*, and other diſorders, the effects, either real or ſuppoſed, of the yaws, are undeſcribed. Theſe are ſome of the moſt obvious heads of enquiry on this ſubject. The Yaws is a diſorder not peculiar to negroes; for ſeveral of the ſoldiers were affected with it.

Cacabay is a negro name for a diſeaſe not known among Europeans, or their deſcendants; as far as I could learn, it begins in whitiſh ſpots upon the ſkin near the ends of the extremities; theſe ſpots turn to ulcers commonly upon the fingers and toes: there is much ſwelling, with pain, and the joint affected drops off without any mortification; the ſore afterwards heals up, and remains well even for months, but returns again, affects the next joint, which after a time drops off; and the diſeaſe attacking one joint after another, in the end reduces the miſerable ſufferer to a mere trunk. It continues often ſeveral years before it proves fatal.

No remedy has been found, either to cure it, or much retard its progreſs*. Mercurials have been tried, but with little or no advantage. It were greatly to be wiſhed, that the ſymptoms of a diſeaſe ſo formidable, and ſo ſingular, were detailed at full length.

A diſeaſe, no leſs ſingular than either of the

* We ſtrongly recommend a courſe of the antiſebrile powders, No. 2.

pre-

preceding, and much more frequent and deſtructive, and which appears to be more a diſorder of the mind than the body, and ſhews itſelf by a very uncommon depravity of the appetite in eating dirt.

Dirt-eaters, as they are called, can ſeldom or ever be corrected of this unnatural practice, for their attachment to it is greater than even that of dram-drinkers to their pernicious liquor. They have a predilection for particular kinds of earth at firſt; but in the end, will eat plaiſter from the walls, or duſt collected from the floor, when they can come at no other. They are fondeſt of a kind of white clay, like tobacco-pipe clay, with which they fill their mouths, and allow it to diſſolve gradually; and expreſs as much ſatisfaction from it as the greateſt lovers of tobacco could do: this practice is common at all ages, even almoſt as ſoon as they leave the breaſt; the young learning it from the old.

Beſides the pleaſure they have in this practice after it has been habitual, they are ſuppoſed to give into it at firſt from other motives; ſuch as diſcontent with their preſent ſituation, and a deſire of death, in order to return to their own country *; for they are well aware that it will infallibly deſtroy them. It is ſuppoſed that a diſeaſed ſtate of the ſtomach may give riſe to the depraved appetite†, but of this there is no good evidence; and, as was obſerved be-

* The negroes entertain a notion, that after death they return to their own country.

† See page 259 and 260.

fore,

fore, it appears to be more a diſeaſe of the mind than of the body.

Whatever the motives may be that induce them to begin the practice, it ſoon proves fatal, if carried to great exceſs. There are inſtances of their killing themſelves in ten days, but this is uncommon; and they often drag on a miſerable exiſtence for ſeveral months, or even one or two years. The ſymptoms that it induces are like thoſe of a dropſy; the appetite fails, the face becomes bloated, the extremities ſwell, and effuſions of water take place under the ſkin, and in all the cavities of the body.

On examining the body after death, there are frequently found in the colon large concretions of the earthly matter, which they have ſwallowed, lining the cavity of the gut, and almoſt completely obſtructing the paſſage. The meſenteric glands are always ſwelled; the blood is thin, with a few red globules, as is common in dropſies, and there are large *polypi* in the left ventricle of the heart, and the aorta. They are very ſtrong and firm, and, pulled out, give the repreſentation of an injection of the aorta, ſubclavian, and caroted arteries.

In order to aſcertain whether they were formed before or after death, the body has been opened a few minutes after the patient had expired, and they have been found already ſtrong and firm. They are no doubt formed when the motion of the heart becomes feeble and languid, juſt before death.

No

No means of preventing the horrid practice of *dirt-eating*, as it is called, nor any method of remedying the deſtructive effects of it, have hitherto been diſcovered; a negro labouring under the malady is conſidered as loſt.

On many eſtates, half the number of the deaths, on a moderate computation, are owing to this cauſe; they are not to be deterred from it by ſtripes, promiſes, or threats; nor have ſtomach medicines, magneſia, and abſorbents, or a good and full diet, ever done much good*. What could not be effected by any means juſt now mentioned, has been in part accompliſhed upon ſome eſtates, as I have been informed, by cutting off the heads from the dead bodies of thoſe, who have died of this vicious practice. The negroes have the utmoſt horror and dread of their bodies being treated in this manner; and the efficacy of this expedient, which can only operate upon the mind, is a ſtrong proof, that the diſeaſe, in its origin, is more a mental, than a corporeal affection.

Croakra, or *Crakrars*, ſo called by the negroes, is a cutaneous diſtemper, mentioned by Mr. Atkins, formerly a ſurgeon in the navy, to be ſomewhat like the itch, but not ſo inveterate. It appears in large blotches and blains diſperſed up and down,

* See the caſe of a ſcorbutic negro; page 259 and 260. Here we recommend the alternate uſe of the antiſcorbutic powder, No. 1 and 2, internally and externally.

and

and ſeems to raiſe on board ſlave ſhips from a ſudden change, to an unuſual and coarſe, if not a ſalt diet, contributing to which, perhaps, may be a neglect and careleſſneſs in drying the ſkin in the warmth of the ſun, after it has been wet with ſalt-water; it is true, they do not ſo ſoon feel the effect, but repetition in the end has its ſhare in helping to fret and chap the cuticle in this manner; at leaſt, I imagine ſo, becauſe reſtraining from ſalt food, uſing baths, and feeding them wholly on rice farina, and beans (the common victualling), does, together with conſtant rubbing in of palm-oil, generally ſmooth and dry it again. Where this latter practice moſtly obtains (*viz.* the windward part of the coaſt of Guinea), there they are the leaſt troubled with theſe eruptions; and where the cuſtom is more intermitting, or ſalted tallow uſed inſtead, it becomes more frequent*.

The *Sleepy-diſeaſe* is alſo mentioned by the ſame author†, to be common among negroes; which gives no other previous notice, than a want of appetite

* The Navy Surgeon, John Atkins, 1734.

† This ſeems ſimilar to the *Cowrap*, a diſeaſe in the Eaſt Indies, mentioned by *Bontius*. The ſame author remarks, that the Indian men and women are in the ſame practice of anointing their bodies with Borboriü, the name their ointment takes from the colouring ingredient, *Turmeric*, in their language, borboriü. See page 95, of this Treatiſe, our own remarks on the benefit derived to the negroes from anointing their bodies, &c. &c.

two

two or three days before: their ſleeps are ſound, and ſenſe of feeling very little; for pulling, drubbing, or whipping, will ſcarce ſtir up ſenſe and power enough to move; and the moment you ceaſe beating, the ſmart is forgot, and down they fall again into a ſtate of inſenſibility, drivelling conſtantly from the mouth, as if in a deep ſalivation.

Young people are more ſubject than the old; and the judgment generally pronounced is death, the prognoſtick ſeldom failing. He attributes the cauſe of this deadly ſleepineſs in the ſlaves to a ſuperabundance of phlegm, or ſerum extravaſated on the brain. And recommends the cure to be attempted, by whatever rouſes the ſpirits; bleeding in the jugular vein, quick purges, ſternutatories, vaſſcutories, *acu-puncture*, ſeton, ſentanels, and ſudden plunges into the ſea. The latter is repeated moſt ſucceſsfully, when the patient is young, and has not got the drivelling at the mouth and noſe. This diſeaſe is not ſo very common in the Weſt Indies, for very obvious reaſons.

Boſman, a very intelligent author, who reſided for many years in Africa, and a cloſe obſerver, relates, that the negroes on the Gold-coaſt cure the moſt *violent cholics*, by giving a draught of lemon-juice impregnated with mallegatta, a ſpecies of the Cayenne-pepper. This they adminiſter a large draught of, morning and evening, or oftener in the day, according to the urgency of the ſymptoms.

The

The *Guinea-worm*, is another diſeaſe of the negroes in Africa, to which it ſeems peculiar; by them called the *Chicoes**. For the prevention and cure, ſee page 78. *Exomphalos*, a diſeaſe, if it may be called ſo, is more peculiar to the negroes of Africa than the Weſt Indies; in the latter, they learn to be more expert midwives, and to make a proper ligature on the *funiculus umbilicales*, or navel-ſtring, at the birth of the infant.

† The African negroes cure both the *yaws* and the *venereal diſeaſe* by ſea-bathing, and promoting perſpiration by drinking plentifully of a decoction of camwood, ſometimes ſharpened with ſour palm-wine, and at other times by lime, or lemon-juice.

A ſtrong decoction of the ſame wood ſoon puts a ſtop to their *dyſenteries*; to which they uſually add a pod of the mallegatta. They relieve *delirium*, and obſtinate *head-aches*, by a leaf of tobacco ſteeped in palm-wine, lime-juice, or ſpirits, applied to the temples; and ſometimes by a ſort of poultice of wild tobacco chopped up green, with green capſicum, applied to the ſoles of the feet. And the ſame compoſition, applied to the wriſts, is their cure for a *fever*, with a decoction of herbs that promote a copious ſweat. They remove a *teneſmus*, by applying the thin rind of a lime, or lemon, in the form of a peſſary, thruſt into the anus.

* The *Chicoes*, a negro word for a worm bred in the feet.

† Barbot and Labat.

They

They cure freſh *wounds* with dreſſings made of gums and barks; and *ulcers* by poultices of green herbs, chopped up or pounded together.

* A common cauſe of ſores is an inſect called a *Chiger*; it is of the flea kind and extremely ſmall. It lays its eggs in the ſkin in an uncommon manner; for it is ſaid to bury itſelf in the fleſh, and become a *nidus* for its own *ova*. The part, where it has thus depoſited itſelf, after a little time, ſwells, becomes red, and itches much. At this period, it is the common practice to pick out of the ſkin, with a fine needle, the bag formed by the body of the parent-inſect, in which are contained the rudiments of the young. If this be neglected, the inflammation increaſes, ſuppuration takes place, and an ulcer is formed.

The inſect harbours moſt commonly in duſt upon the floor, or ground, and generally depoſits its *ova* in the toes and feet, and many loſe one or more of their toes, by ulcers ariſing from this cauſe.

The deſcendants of the Portugueſe, who, in ſome parts of Africa, blend and become one people with the blacks, and are ſcarcely diſſimilar in colour, cure this diſeaſe by applying white lead, mixed up with lime-juice, to the conſiſtence of a

* Dr. John Hunter.

liniment,

liniment, on the part, as ſoon as the ſwelling, redneſs, and itching indicate the place where the *chiger* is depoſited; and renew the application as it dries, until the embryo of the inſect are deſtroyed, which is known by a ceſſation of the ſwelling, redneſs, and itching.

There is a large fly, that produces often a dreadful diſeaſe, by depoſiting its ova in the mouth or noſe.* It happens frequently to *negroes*; and there are ſeveral examples of it among the common ſoldiers. While they are ſleeping in the open air, the fly depoſits its ova moſt commonly in the noſe, but ſometimes in the mouth. The pain, ſwelling, and inflammation about the face, after the maggots are formed and ready to break forth, are very great, and the poor ſufferers are almoſt diſtracted. The number of living maggots that come away is often conſiderable, and they are of a large ſize, being nearly half an inch long.

The uſual remedy in ſuch caſes is, inhaling the ſteam of a ſtrong decoction of tobacco through the mouth and noſe, according to the ſeat of the diſeaſe; it procures relief; perhaps waſhing the mouth and ſyringing the noſe might be equally, or more effectual.

The African negroes dreſs foul ulcers with the

* Dr. John Hunter.

lint

lint of the cocoa-nut beat fine, made into a pledget, and dipt in lime-juice and palm-wine. In the application to ulcers, the lime-juice is in the greateſt proportion. When applied to bruiſes, torn and ſhattered fleſh, the palm-wine is uſed in an over proportion to the lime-juice. In bruiſes and ſwelling from external injuries, it is their practice to bathe them with palm-oil and lime-juice, with gentle friction on the part.

Mr. Lucas, ſurgeon of the Conqueror, Dr. Blane, and Pierre Labot*, have treated ſcorbutic ulcers with lemon and lime-juice ſucceſsfully, both ſprinkled on a poultice, and on lint. Oatmeal, boiled up in lemon or lime-juice and water, for a poultice, ſprinkled with antifebrile powder, is very efficacious.

The Hottentots cure the cholic and pains in the ſtomach, by cupping upon the part. They ſuck the part affected, having laid the patient on his back, and apply the upper part of an ox-horn, which is ſuffered to remain till the operator imagines the part is rendered inſenſible. The horn is then removed, and two or three inciſions made with a knife, and the ox-horn applied, and ſuffered to remain until it is filled with blood and drops off.

They cleanſe the ſtomach and inteſtines with the juice preſſed from the leaves of the Aloe, which is both a cathartic and ſtomachic.

* A French author of cloſe obſervation.

Dr. Nathaniel Hulme recommends to the merchants and traders to Africa, to inſtruct the captains and doctors in the ſlave trade, to furniſh a ſufficient quantity of orange, lemon, or lime-juice, to ſerve out regularly to the negroes during the voyage; as it might tend more towards the preſervation of their lives, than any other method they have fallen upon.

He imagines the vegetable acid more particularly neceſſary for them, as they are ſo much accuſtomed to it in their native country. By this means, fevers, fluxes, and ſcurvies, which carry off ſo many of thoſe poor creatures, might perhaps in a great meaſure be prevented, and thereby an immenſe ſaving be made to the merchants and trade in general; to which we may add, independent of what is due to the feelings of humanity; for although a recent act of Parliament obliges them to give the ſlaves more room, and conſequently more air, until the utmoſt attention is otherwiſe paid to the preſervation of their health, the mortality on the middle paſſage will always continue to be very great.

An attention to this, in any future regulation intended by the legiſlature, might not be unworthy of a free people; who, as a commercial nation, may palliate what they cannot wholly prevent, without invading private property.

Although

Although this is a ſubject that affords a wide field for the feelings of humanity, they have ample ground for the exerciſe of ſuch feelings in their crowded priſons, while Engliſh liberty, or the liberty of an Engliſhman, is eſtimated by act of Parliament at a groat a day. Which ſerves to ſhew foreigners in what eſtimation this boaſted liberty is held by the legiſlature of a free people.

Mr. Thomas Trotter, a ſurgeon of the navy, in his publication, entitled, *Obſervations on the Scurvy*,* relates; about the beginning of July 1783, the Liverpool Guinea-man, of which I was ſurgeon, came to an anchor off Cape la Hore. No ſhip had traded there for ſome time; ſo that in the ſpace of a week, we purchaſed one hundred ſlaves. They were all young, ſtout, and apparently healthy. After being ſo far lucky in beginning our purchaſe, we proceded to Anamaboe to complete the cargo: At coming to an anchor at Cape Coaſt Caſtle, we were informed of the ſlaves not only being ſcarce, but very dear; from the number of veſſels then lying in the road.

So ſlow was the progreſs of our trade, that in February we had not bought two-thirds of our number. About this time, I perceived the ſlaves, firſt purchaſed, growing exceedingly fat; and on that

* 1786.

account urged to the maſter, the neceſſity of allowing them more exerciſe, or reducing the quantity of their diet, which had hitherto been too much; from a miſtaken notion, that it would ſtrengthen them the more for a paſſage to the Weſt Indies.

Their diet conſiſted of beans, rice, and Indian corn, alternately boiled, to which were added, a ſufficiency of Guinea-pepper, and a ſmall portion of palm-oil and common ſalt. A crew*, which held from fourteen to ſeventeen quarts of this compoſition, which was of the conſiſtence of ſoft paſte, was given to ten of them twice in the day; they were allowed to drink water when they pleaſed; but, from being confined for fifteen or ſixteen hours below, and permitted no exerciſe when upon deck, it was eaſy to foreſee they could not remain long in a healthy ſtate.

Such, however, was the obſtinacy of the maſter of the veſſel, that this treatment was ſtill perſiſted in; the food was given them in equal quantity, and though a certain number might have been taken out of irons at a time, without endangering the ſafety of the ſhip, it was not attended to. The cuſtom of dancing them to the ſound of a drum,

* A ſhallow meſs tub uſed in the ſlave trade.

perhaps,

perhaps, from a diſlike the commander had to every ſpecies of harmony, was alſo denied them till too late.

In this ſituation, things remained with us till the beginning of March; no precaution being uſed to ſecure the health of the cargo, when a corpulent negro complained to me of a hardneſs in the ſupinator radii longus of his right arm. It had a very unuſual feel, and the ſkin did not retain the ſmalleſt impreſſion of the finger, or of any force I could apply. He was ordered ſome ſimple thing to rub it with; but on inſpecting it next day, I found the hardneſs extend to all the muſcles of the upper part of the fore-arm, with ſome contractions at the joint of the elbow, and rigidity of the tendinous aponeuroſis of the biceps; the parts affected were not in the leaſt ſwelled, or increaſed in ſize. And in this manner did it ſpread up the arm to the ſhoulder, over the muſcles of the neck and lower jaw, producing a *triſmus*; and from thence downwards, till a ſpaſtic rigidity pervaded every muſcle of the body.

About this time, this hardneſs extended ſo far up the ſhoulder, a ſtupor came on; and while he retained the uſe of his other hand, he continued picking ſtraws from the deck, as people do the bedclothes, in a ſtate of delirium. The eye now be-

came fixed, and the tongue lolled out at the ſide of the mouth before death. In this caſe, the warm bath was tried, and perſiſted in for ſome time without effect; and when endeavouring to force the mouth open, to try another remedy, I firſt found the gums exhibit the appearance as in the ſcurvy, and ſeparating in a black maſs from the teeth, many of which were looſe, and the fœtor of the breath intolerable.

There was now little doubt, that the diſeaſe in queſtion was the ſcurvy, though I could by no means reconcile circumſtances to any thing I had ever read or ſeen of it; but as I had heard of it occurring among negroes, where the like cauſes were acting, I was the more confirmed in my opinion.

It was now time to think of either preventing it among the other ſlaves, or taking it at the beginning; and as the one juſt dead was remarkably fat, it was moſt probable thoſe in the like ſituation would be ſufferers.

I accordingly ſelected the moſt corpulent, and on examining them cloſely all over, found the like hardneſs in many of their limbs. Their gums were juſt beginning to ſhew the appearance of fleſh ſprouting out from them; they complained of pains and weakneſſes in their extremities, and whenever they lay down, were ready to fall aſleep.

Ulcers

Ulcers on any part of the body were covered with clotted blood; by the ſailors called bullock's-liver, which it very much reſembles. Many of them, inſtead of the hard ſpots on their limbs, had their legs ſwelled; and putting on preſſure, a peculiar ſtupor was obſerved in ſome, which in the advanced ſtate of the diſeaſe turned to delirium, and none but one with this ſymptom recovered.

A contraction of the joints of the ham and elbow was equally frequent. In a few, there were hæmorrhages from the noſe, and a purging of blood.

Theſe appearances were all for ſome time confined to the ſlaves that had been longeſt on board; and among them, thoſe that were moſt corpulent, and uſed leaſt exerciſe.

So certain was I of this, that when I ſaw a negro taking on fat too rapidly, I could judge when he would be ſeized in the like manner. Thus it advanced among them by quick degrees, till it ſhewed every different ſymptom taken notice of by authors. When it came to affect a greater number than thoſe of the firſt purchaſe, I could perceive the natives of ſome different countries more liable to it than others. Of theſe, were what are called the *Dunco* country, of a ſallow complexion, heavy dull look, inactive and gloomy turn of mind: while the Fantees, who are preferred to all other natives of Guinea, on account of their fine black colour and genteel ſhape, were ſcarcely tainted

with the diſeaſe. Theſe, on the contrary, are a cheerful, lively people, and generally the firſt to raiſe mutiny in ſhips, or undertake any hazardous enterpriſe.

Of all the women*, only eight were affected, and that number was confined to the Duncos; very few were tainted, from being out of irons, and allowed to run about the ſhip. During all this, none of the ſailors had the leaſt ſcorbutic taint, though they generally eat a portion of the ſlave's victuals with their ſalt beef; but they had at all times plenty of freſh vegetables, which they purchaſed themſelves from the natives; and which, I believe, were the means of correcting the bad properties of the water they uſed.

Our ſituationwas now ſo bad, that numbers were daily taken ill, and others dropping off; while the maſter of the veſſel, whoſe character was perfectly congenial to the trade, attributed every misfortune to the machinations of the doctor and the devil.

Our ſmall ſtock of vegetables at departure, did not exceed a few gallons of lime-juice, ten or twelve dozen of oranges, and ſome baſkets of guavas; being ſoon conſumed, the ſtate of the cargo was left miſerable indeed. The decks were

* The European women get their health better in the *Weſt Indies* and moſt parts of the *Eaſt Indies* than the men, probably from being more regular in their way of living, and habitually more ſedentary: in Africa it is on the contrary, the men uſually ſucceed beſt.

covered

covered with miſerable objects, exhibiting views of diſtreſs equal to any ever recorded of this loathſome diſeaſe.

In five weeks paſſage to Antigua, we buried forty, and it is probable, that had we been ten days more at ſea, half the cargo muſt have periſhed; there being at that time three hundred tainted in different degrees with the ſcurvy.

Here we took in ſupplies of freſh vegetables, conſiſting of lemons, limes, oranges, pine-apples, &c. Theſe were diſtributed among them occaſionally, and though they continued their uſual diet, in the ſpace of eight days that we were going down to Jamaica, there were little remains of the ſcurvy among them.

With reſpect to the method of cure, that will be found under the head Scurvy; where alſo may be ſeen the caſe of a negro, who in the Weſt Indies became ſcorbutic from a vegetable diet, which is a very common caſe with negroes in theſe Iſlands*.

With respect to the Feeding of Negroes in the Sugar Colonies.

†It is unfortunate for the negroes of theſe Iſlands, that their maſters have been ſo generally im-

* Page 259.

† Dr. Wilſon on the Influence of Climate.

preſſed

preſſed with an opinion, that animal food is hurtful and productive of ſores: this has originated from miſtaking theſe ſores for the true ſcorbutic ones.

When errors are of ſo long ſtanding, it is exceedingly difficult to eradicate them; particularly in a climate where every mental exertion ſeems intolerable.

Domeſtics, in the ſugar colonies, eat more animal food than the labourers, and are, in conſequence, leſs ſubject to ſores; wounds and ſcratches on them cure more eaſily; and they are obſerved to be more healthful, and live to a greater age, than thoſe who cultivate the ſoil.

Did the proprietors of eſtates give a more ample allowance of animal food, their negroes would be more vigorous, and live longer; for there is not the ſmalleſt danger of the real ſcorbutic ſores from an enlargement of this kind.

Fiſh, as a compound animal ſubſtance, is better than an equal weight of beef; it is a more animalized body, and therefore a leſs quantity of it will counteract the effects of crude vegetable diet.

Negroes are leſs ſubject to putrid epedemics than the white inhabitants of the ſugar colonies. When putrid diſeaſes are prevalent, either from cloſe hot weather, in the latter end of the wet ſeaſon, or from low marſhy ſituations, the white people ſuffer exceedingly,

ceedingly, and numbers of them are annually carried off with the higheſt ſymptoms of putrefaction; but in ſuch ſeaſons, and at ſuch places, the negroes are ſeldom known to ſuffer, or be ſubject to ſuch attacks. This ſeems evidently the effect of their food; the continued vegetable diet acts as a conſtant corrector of the putreſcent tendency, and prevents the ſame cauſes producing the ſame effects in them, which they occaſion on others, whoſe bodies are in a more animalized ſtate.

To ſimilar reaſons, we may attribute the ſcurvy being ſo little known among the Venetians, though they live in a damp ſituation, interſected with canals, from their living principally on vegetables. The iſland of *Teneriffe*, the *Montpelier* of the north-weſt ſhore of Africa, and the *Canary Iſlands* altogether, though enjoying a pure, ſerene, dry air, particularly the former, ſufficiently diſtant from the main land of *Africa*, but ſeldom ſuffer from the *dry fogs*, and phlogiſticated winds of the main land, from the wind rarely ſetting due eaſt. Yet the inhabitants are remarkably ſcorbutic, particularly in the lent-ſeaſon, from the principal part of their diet conſiſting of a very cheap, badly cured, half-rotten ſalt fiſh; which is ſufficiently conſpicuous to every one who has viſited that iſland, in their way to Africa and the Eaſt Indies, &c. attracted by the cheapneſs and goodneſs of their wines,

which

which are highly beneficial on long voyages, and in all latitudes.

To which they are the more addicted, from the crude, watery, indigeſted, unanimalized ſtate of their juices, from their poor low manner of living, and defective nutrition. And to whom this loathſome diſeaſe would ſoon be fatal, were it not counteracted by the mildneſs of the temperature, and ſalubrity of the air.

When a vegetable diet has been long uſed, which is not altogether the caſe here, the fluids are thinned, and the ſolids become ſoft and relaxed. In more ſouthern climates, this is more remarkable, from the heat co-operating with the diet. Perſons in this condition eat moſt greedily of all kinds of animal food.

Such food, if in a ſound, or even a partially depraved ſtate, if unmixed and unſubdued by the long action of ſalt, is harmleſs, and to thoſe perſons even healthful, though it would be productive of the worſt conſequences, in bodies that had been nouriſhed by a due proportion of animal matter; as in thoſe it would increaſe the alkaleſcent and putrid tendency beyond due bounds *.

* Every overſeer in the Weſt Indies, knows, that the negroes who cultivate the ſoil, and live almoſt entirely upon vegetables, prefer ſalted and tainted meats to thoſe which are freſh and ſound.

* The

* The ſceptic degeneracy of the animal fluids, and their putrid tendency in the living animal body, is much increaſed in hot latitudes by the impregnated ſtate of the atmoſphere; as in theſe countries the air is unable to free the body by the lungs from the putreſcent matter continually diſengaged for ſecretion. It therefore accumulates, in a certain degree, through the whole ſyſtem, and goes off by the ſkin more copiouſly than in colder climates; to which the colour of the body may probably be attributed, and alſo its particular form, and that peculiar diſpoſition of mind, which marks the natives of the tropical climates †.

In the frigid zone, the air is exceedingly favourable to the diſcharge by the lungs, as it is there dry and unimpregnated, but the aliment of the inhabitants is animal, and moſtly fiſh. A diet of this kind co-operates with the want of perſpiration to bring on a general ſtrong putreſcent tendency; therefore, from the oppoſite external cauſes, viz. heat and cold, we find the ſame effects, *for the internal heat of the human body is nearly the ſame in all climates.*

The inhabitants of the middle climates, or temperate zone, breathe an air, which, though not

* Dr. Willſon.

† See page 184 of this Treatiſe.

ſo

ſo much dephlogiſticated as that of the frigid zone, yet infinitely more ſo than the air of the warm latitudes; added to which, their perſpiration is, generally ſpeaking, ſufficiently plentiful, and the principal part of their food is vegetables.

From thoſe united cauſes, ariſes the leſs habitual putreſcent tendency of the inhabitants of the middle climates, by which a much leſs proportion of phlogiſton is diſcharged through the ſkin; and, in conſequence, the colour and appearance of the body, and the faculties of the mind, of the nations of the temperate regions, are as widely different from thoſe of the torrid and frigid zones, as the climates which produce and nouriſh them.

The perſpiration of *Negroes* is of a ſtrong pungent alkaline odour, which ſeems to ariſe from ſome peculiar property or power in the reticular covering, which gives colour to the ſkin.

This extraordinary phlogiſticated perſpiration, ſo remarkable in blacks, we ſuppoſe, depends on the powers of ſecretion in the *Rete mucoſum*, by which the putreſcent matter is more copiouſly diſcharged from the ſurface of the body: and, undoubtedly, a more free diſcharge of the putreſcent *effluviam* by the ſkin, may not only liberate the conſtitution in a certain degree, but tend to produce that very blackneſs in the rete mucoſum itſelf.

From

From theſe very diſtinguiſhing external marks, *Negroes* ſeem a peculiar variety of the human ſpecies, better fitted by nature than thoſe of fairer complexion, to diſcharge by the pores of the ſkin, the phlogiſton evolved from their bodies, and conſequently are much better adapted to the warm climates.

If blackneſs of the ſkin was acquirable, like that of brown, by a long continued habitual putreſcency, the inhabitants of Greenland and Nova Zembla ſhould be black, and their hair ſhort and curled, as they are more in this ſtate than the Aborigines of hot climates; yet the colour of their ſkin is only dark brown, and does not affect the growth of their hair, which is uſually long, ſtrait, and black.

The negroes are remarkably leſs timid and more hardy than the *Indians* of the warmer climate. They are taller, better made, and infinitely more laborious, and equal to the fatigues and violent exertions mankind ſometimes undergo in hot climates, from their choice, or neceſſity, ſubſiſtence, or the line of duty they may be engaged in, as ſailors or ſoldiers, workmen or labourers, &c.

They have a degree of ſpirit and appearance, ſuperior to the Indians of the torrid zone, that has ſometimes manifeſted itſelf, when attempts of conqueſt, or ſettlement have been made by Europeans.

CON-

CONCLUSION OR POSTSCRIPT.

OBSERVATIONS ON FEVERS.

*AFTER many years careful attention to the ſymptoms and nature of fevers, as they have occurred in practice in different climates; and after reading many authors upon the ſubject, I am thoroughly convinced, that although many *varieties* happen, according to difference of conſtitution, ſeaſon, ſituation, and climate, yet in every part of the world, the *diſeaſe* is eſſentially the ſame; or, in other words, conſiſts only of one GENUS; and that the only *ſpecies*, that can be aſcertained, are the *Intermittent*, *Remittent*, and *Continued*†.

In ſupport of this opinion, the intelligent reader is referred to the conſideration of the eſſential ſymptoms of theſe ſpecies of fever. The continued fever, he will find, does not differ more

* Dr. John Clark.

† See page 12 of this Treatiſe.

from

from the remittent, than the remittent from the intermittent type, and their frequent changes into each other, and perhaps again into their original form, prove them to be the ſame GENUS.

Thus the intermittent fever will in ſome caſes aſſume the continued form; the remittent for ſeveral days will run on with unabated violence, and often, after the moſt ſenſible remiſſions, terminate again into the continued fever. Thus alſo, every continued fever has alterations and exacerbations, and therefore in a ſtrict ſenſe may be conſidered as a remittent.

THE CAUSES OF THE REMITTENT FEVER.

Independent of moiſt air after long continued heat, exhalations from marſhes or damp grounds are principally; too great inanition, too great repletion from a diet of animal food, fatigue in the heat of the ſun, and the dejecting paſſions of the mind.

The three firſt prediſpoſing cauſes are ſo evident, that none can doubt their powerful influence; nor did it eſcape the eyes of the moſt common obſervers at Bengal, that thoſe that had been much reduced by evacuations, particularly by the uſe of mercury, great eaters of animal food, and thoſe who exhauſted themſelves by fatigue in the heat of the ſun, were moſt liable to fevers; and, when attacked, had the worſt chance of recovery.

But of all the prediſpoſing cauſes, none ſeemed ſo powerful as the debilitating paſſions of the mind, ſuch as diſappointment, grief, and fear. It is owing to this circumſtance, that fevers and fluxes are ſo very fatal to young adventurers, who annually emigrate in expectation of acquiring riches. Upon their arrival, finding all their deluſive hopes ſuddenly diſſipated, they become low ſpirited, take the infection, and are carried off in an inſtant*; while others, as little inured to the climate, and expoſed to the ſame remote cauſes of diſeaſe, but who have better proſpects or better ſpirits, either eſcape the ſickneſs, or, when attacked, have it in a leſs malignant form.

But of all the debilitating paſſions, none is attended with ſo powerful and ſo ſudden an influence as fear; for I have obſerved, that when a dangerous fever has occaſioned almoſt an inſtant attack, when the perſon has been expoſed to the remote cauſe of the diſeaſe.

And it is perhaps eaſier upon this, than upon any other principle, to account for the ſudden deaths, which frequently happened to ſome, who attended the funeral of a deceaſed friend at Bengal, which generally happened to the timorous and

* This has been recently the caſe at *Sierra Leona*, &c. among the new Coloniſts ſent out to ſettle in 1792.

humane

humane, who ſuffered, while the hard hearted and callous eſcaped.

There is ſome peculiarity in the ſymptoms of the *Puka*, *Jungle*, *Hill*, or *Fen Fever* of *Bengal*, which induces us to enumerate ſome of them here; though probably, but little different from the *Yellow Fever* of the *Weſt Indies*, the *Senegal*, or *African Fever*.

Pains in the bones, loins, head, and lower extremities, numbneſs of the hands, pains in the right clavicle or ſhoulder, dyſentery, and other ſymptoms of an *affected liver*; difficulty of being purged, ſpontaneous vomiting of bile, and irregular ſecretion of it, ſometimes a deficiency, at other times a redundance; a heavineſs over the eyes, which are ſometimes muddy, at other times ſuffuſed with yellow; offenſive ſmell of perſon, ſtinking breath, and fœtid ſtools; unſufferable fullneſs after taking in any ſuſtenance; piles; relapſe at lunar periods*.

In the *puka, jungle, and other virulent fevers*, although there is no time to be loſt, yet the burning heat, pain and ſymptoms of inflammation, with irritability and vomiting, uſually accompanying them, does not admit of irritating emetics, which may at firſt ſeem to be indicated. Under theſe terrific

* Dr. John Peter Wade.

appearances, let not the young practitioner be prevented from manly exertions to relieve his patient. And if the antifebrile powder, No. 2, is not at hand, let him immediately administer opium alone, or combined with calomel, half a grain of each, and from that to a grain and a half, in the form of a pill or bolus, to be repeated every half hour, as the urgency of the symptoms indicates, until the pain and irritability abate.

When the pain is abated, the operation of the opium and calomel should be assisted by clysters, fomentations, and in very urgent cases by the warm bath. This treatment will remove the pain and irritability, and mitigate the feverish paroxysm, and the bark may be thrown in. If there is any suspicion of its being rejected, or if the stomach should reject the first, or any subsequent dose, combine it with opium, in default of the antifebrile powder, No. 2, and administer purgative clysters.

In cases less urgent, the following prescriptions may be beneficially begun with*:

† Take of Epsom, or Glauber salts, j ℥.
Emetic tartar, ij grains.
Water two quarts.

* Saline draughts in a state of effervescence relieve the vomiting.

† Glauber salts keep best in a warm country; Epsom salts attract moisture, which renders the dose uncertain.

Two

Two ounces of this *purging mixture* to be taken every hour, until it operates downwards.

Take of Emetic tartar, ij grains.
Opium, ij. grains.
Water one pint.

Two ſpoons full of this *emetic mixture* to be taken every hour, until it operates.

Theſe laſt two are taken from Dr. John Peter Wade.

Dr. Schotte, a German phyſician, informs us, that the African, or *Senegal fever*, generally happens during the rainy ſeaſon; but when the rains are heavy and overflow the iſland, the fever aſſumes a malignant continued form.

The moſt diſtinguiſhing ſymptoms which attend this fever in the beginning, are nauſea and ſickneſs at the ſtomach, great head-ache, pain in the back, vomiting of bile, ſometimes great quantities of black matter, reſembling coffee-grounds, the eyes are red and ſhining, and ſeem to project from their orbits. As the diſeaſe advanced, a delirium was added, the patients complained of a burning heat at the ſtomach, attended with ſickneſs and unquenchable thirſt; a putrid diarrhœa came on; ſlight hæmorrhages made their appearance, to which were added petechiæ, vibeces a few minutes before death.

Symptoms, ſo horrid and dreadful, ſeemed to preclude all poſſibility of recovery. Moſt patients died on the fourth or fifth day; a few were carried off ſuddenly, and ſome others not before the ſixth or ſeventh day. Thoſe who ſurvive the ſeventh day, either recovered, or fell into lingering dyſenteries, attended with obſtructions of the liver, which ſometimes terminated in ſuppuration, and of which death was ſooner or later the conſequence.

A conſtant and uninterrupted fever attended the diſeaſe from the beginning to theend, in all of them who died; and in ſome who recovered, no *apyrexy* took place before the ſeventh day, or later*.

The practice recommended by Dr. John Clark, is, after the bowels are unloaded by a purgative clyſter, that at leaſt one hundred drops of tincture of opium be given in three or four ounces of any emollient decoction by way of clyſter, and that the patient be immediately put into a warm bath; that when he is removed into his bed, eight or ten grains of calomel be given in the form of pills with opium, if the anodyne clyſter hath not totally removed the vomiting, and that the operation of theſe pills be hurried by the exhibition of more purgative clyſters; and that, as ſoon as the

* Schotte on the Synochus atrabilioſa, which raged at Senegal in 1778.

bowels

bowels are opened, no time be loſt in throwing in the bark in the moſt liberal manner.

The uſe of the bark at this time may be thought highly dangerous, and has therefore been cautiouſly prohibited by almoſt every medical writer, ſince the days of *Sydenham*. But experience affords ſufficient proof, that this objection has no manner of foundation, and that the bark may not only be given with the greateſt ſafety, both in the remiſſions and exacerbations, but even when the fever is continual.

The *Diet* of the ſick ought to be of the moſt antiſeptic kind. Ripe fruit anſwers very well both the intention of food and medicine. The panado, ſago, and other diet on ſhipboard, ſhould be acidulated, or the drink may be rendered agreeably tart by cryſtals of tartar, or elixir of vitriol. If the patient's ſtrength begins to ſink, he ſhould be freely ſupported with wine in his drink, food, and medicines; his linen ſhould be frequently changed, and his apartment kept as cool and clean as poſſible.

When the patient longs for cold water, which is commonly the caſe, it may be allowed him freely, as it will be found the beſt dilutent. Nothing, indeed, in acute diſeaſes, can be more cruel than to refuſe a patient the gratification of his ſtrong cravings. Very happy effects often follow from

indulging; and if it be very improper, there will never be ſo much of it taken as to do any harm.

On board of ſhip, porter, punch, cheeſe, and ham, are moſt frequently deſired by the ſick in fevers; and, however improper they may appear, I have often ſeen an allowance of them produce the beſt effects*.

As nothing can be more pernicious than violent reaching and vomiting, this dangerous ſymptom muſt not be aggravated by any method of cure that admits of the uſe of emetics; the vomiting overcomes; though the bark ſhould be given with diligence, yet with caution at firſt, by beginning with the infuſion, or decoction, and adding the powdered bark, as the ſtomach will bear it.

In the very low ſtate of theſe fevers, ſucceeded by violent paroxyiſms, when the quantity of bark that the ſtomach will bear may be very little, the patient's ſtrength muſt be ſupported by cordials: Claret and Rheniſh wine and water; Teneriff and Madeira wine, by mixture and treatment neceſſary for the ſick, are not ſo liable to ſour and be converted to vinegar in warm climates.

Generally, during the firſt attack of the fever, there is a great loathing of food, and of wine, but in the remiſſion this is not the caſe; and both be-

* Dr. John Clark.

come

come neceſſary, in order to ſupport the ſtrength of the patient.

It is of the utmoſt conſequence, in giving both nouriſhment and wine, that they be repeated often, and that only a little be ſwallowed at a time, for the ſtomach is eaſily overloaded, and provoked to vomit.

When the ſick are greatly reduced, after two or more paroxyſms of fever, wine and nouriſhment become more eſſential than medicine; for in ſuch circumſtances, the bark itſelf often does little or no good, until the powers of life are in ſome degree recruited. When a ſtupor or *Coma* attends, treat it as directed under fevers*; this being a ſymptom of the fever, whatever is uſeful in procuring a remiſſion, helps to remove it. In default of the antifebrile powder, No. 2, we follow the example of Dr. John Hunter†, who recommends *James's powders*, given in doſes of five grains, and repeated every ſecond and third hour, till the fever remit, or the medicine have ſome ſenſible operation. If the ſtomach is in an irritable ſtate, it ſhould be conjoined with opium.

A *ſtupor*, or *coma*, is a mark of a ſevere diſeaſe, and ſtrongly indicates the neceſſity of making the

* Page 22, 34, and 145, et ſequel.

† Obſervation on Diſeaſes of the Army in Jamaica.

beſt

beſt uſe of the enſuing remiſſion, by giving the bark in the moſt effectual manner, in order to check or moderate the next paroxyſm, which otherwiſe might prove fatal.

INTERMITTENT FEVER.

We have treated on this ſpecies of fever very fully under Agues*. If any thing further was thought neceſſary, it would be to alternate the exhibition of the antifebrile powder, No. 1, with the antifebrile powder, No. 2, in obſtinate caſes, and where affections of the liver, and other viſceral obſtructions ſupervened.

And we recommend in all ſuch caſes, and in their concomitant ſymptoms, to treat this fever in a ſimilar manner to that juſt now laid down under *remittents*, and diſeaſes of the *liver*. And in default of our medicines, to make a liberal uſe of mercury and opium, particularly the former, in all climates where bad caſes occur.

* See page 137 to 182.

Of the Tetanus, or Locked Jaw.

* John Pennick, aged 26, on the 13th April, 1792, in jumping from the booms, ſprained his ancle: an hour after the accident, he being in great agony, I was ſent for to viſit him†. He had conſtant tranſient convulſions of the muſcles of the leg and thigh, the pain of which made him ſweat profuſely.

Upon examining the part ſprained, nothing could be obſerved, except a ſmall puffy tumour near the *tendo achilles*. When the foot was brought forward in an acute angle, the pain inſtantly ceaſed; but, upon letting it go as to relax the tendon, the tremors and pain recurred with great violence.

The foot being ſecured by a bandage in the poſition before mentioned, he continued perfectly eaſy for ſome hours, which induced him to believe, that the cramps would not return. But, upon taking off the bandage, he ſuffered much from his temerity. Two drams of tincture of opium were rubbed into the part affected, which, together

* Extracted from Dr. Clark.

† This was in the Eaſt Indies.

with

with replacing the bandage, totally removed every painful ſenſation.

Some hours after this, he thought himſelf well, and being a very active fellow, would not ſtay below. He therefore again removed the bandage, and returned to duty.

On the 25th of September, he was ſeized with ſpaſms between his ſhoulders, which prevented him getting any ſleep in the night. On the 26th, being in extreme torture, I was ſent for, and found him in the following ſtate:

Severe ſpaſmodic contractions ſeizing the muſcles, forcibly drew back the *ſcapulæ* almoſt in contact with each other. In a moment the ſpaſms changed their ſituation, and ſtriking acroſs the ribs to the *ſternum* as violently in jerks, drew the head towards the breaſt.

Theſe contractions returned with ſeverity eight or ten times in a minute, the momentary relaxation allowing ſome little reſpite from pain. In the night he obſerved, he could ſcarcely open his mouth from rigidity of the jaw, and that he had been able to avoid no urine for twenty-four hours.

Thirty drops of tincture of opium were immediately given, and ordered to be repeated according to the urgency of the ſpaſms. The muſcles affected were likewiſe embrocated with a camphorated liniment and opium. After taking three

draughts,

draughts, the ſpaſms were mitigated; but, at night he complained of a difficulty in ſwallowing.

On the 27th, the muſcles of the neck, ſpine, and jaw, were more rigid, but the ſpaſmodic twitchings were kept tolerably eaſy by opium. In the afternoon, as he complained of confuſion of his head, the opium was given leſs frequently. One dram of aſafœtida in ſolution, was preſcribed every two hours, and five grains of calomel occaſionally, when coſtive.

On the 28th and 29th, he had frequently the hiccough; the other ſymptoms were the ſame. On the 30th, after paſſing a good night, he ſeemed much better; and on the firſt of May, was free from every complaint, except weakneſs.

Having given over taking both the aſafœtida and opium, on the evening of the 2d of May, his complaint returned with great violence.

His jaw was ſo firmly locked, as only to leave a ſmall opening between the teeth. The *ſcapulæ* were drawn towards each other in convulſive jerks, and his body bent forwards at times, by a ſtrong ſpaſm ſeizing the *ſternum*, abdomen, and ribs.

His left eye was dull and watery. After every ſevere attack of theſe tranſient ſpaſms, he complained of faintneſs. Five grains of calomel were given, and opium was ordered to be continued freely.

He

He refuſed aſafœtida. The jaw was locked during the whole day. He ſwallowed at night with difficulty, and complained at night of an uneaſy ſenſation in the gullet, which he compared to the beating of a watch.

May 3d, he ſweated much during the night, but got no reſt. His jaw was leſs rigid, and he could open his mouth a little wider; but the ſtricture at the pit of the ſtomach was diſtreſſing.

The 4th, he was ſeized with violent contractions of the muſcles of the neck and chin; and his jaws became again firmly fixed. Forty drops of the tincture of opium were given in a doſe of camphorated julep, and repeated according to the urgency of the ſpaſm.

But as the opium had hitherto afforded a temporary relief only, I was now determined to ſaturate the ſyſtem with mercury: therefore, beſides, the uſe of calomel, two drams of ſtrong mercurial ointment were carefully rubbed into the jaw and neck.

The 5th, in the morning, he could open his jaw; but, ſtrong ſpaſms ſeizing him at mid-day, it became again ſtrongly fixed. Two drams of the mercurial ointment were rubbed into his legs and thighs, and the opium was continued.

On the 6th, the hiccough attacked him with ſeverity.

On

On the 7th, he could open his jaw, and was free from ſpaſms. His mouth was tender, but no ſalivation was produced. Wine, for ſome days paſt was allowed freely, and he was now ordered one dram of the bark every three hours. The opiate was continued at bed-time.

From this time, he began to recover; and again returned to duty on the 10th of May. He was deſired for the ſake of ſecurity to continue the bark; and to bathe in a tub of ſea water. But thinking himſelf perfectly ſecure, he neglected theſe precautions.

On the 19th of May, he was ſeized more violently than ever. His neck became rigid, his jaws fixed, and the convulſive contractions affected various parts of his body. The ſame means were again had recourſe to. Opium always effected temporary relief.

All his complaints diſappeared by the 25th of the month, except a ſlight hiccough after ſwallowing liquids. He afterwards uſed the cold bath every morning for ſome weeks; and was reſtored to his uſual health.

After getting frequently wet, on the 20th of July, he was again ſeized with ſpaſms in a very violent manner; which, however, were mitigated, after taking ſix grains and a half of opium; and in four days, diſappeared under the moderate uſe of the ſame medicine. In

In exhibiting opium in the *tetanus*, the doſe muſt be increaſed ſo as to relieve the violence of the pains and ſpaſms. The quantity which may be taken, without affecting the head, or producing ſleep, in this diſeaſe, is aſtoniſhing.

Dr. Huck*, in a caſe of the locked jaw, ariſing from a wound, and which terminated ſucceſsfully, began with one grain of opium every three hours. But by the 9th day, the doſe was from neceſſity increaſed ſo, that the patient, at proper intervals, conſumed, every twenty-four hours, one dram of opium and half an ounce of muſk, rubbed down with ſugar, in a pint of common julep.

This quantity, however, is trifling, in compariſon to what is ſometimes required in ſo painful a diſtemper.

Dr. Gloſter†, of Antigua, in a caſe of a locked jaw, in a *negro*, aged 40, whoſe diſeaſe, alſo terminated favourably on the ſecond day, began with giving five grains of opium every third hour, in a powder joined with camphire and nitre. The opium was gradually increaſed. It was afterwards united with muſk and cinnabar, and laſtly, given to the extent of twenty grains every third hour.

* Medical Obſervations, vol. iii. p. 333.

† Tranſactions of the American Philoſophical Society, vol. i. and Clark on Long Voyages, vol. ii. p. 457.

For

For ſix days, the relief was inconſiderable; but after this, the ſymptoms gradually abated, and in thirteen days more, were ſo much diminiſhed, that it was judged unneceſſary to continue the medicine during the firſt ſeventeen days; the patient took, in all, *fifteen hundred grains of opium*, without producing the leaſt affection of his head. During the whole time, he alſo had very little ſleep.

With reſpect to counteracting the bad effects of an over doſe of opium. Dr. Lind* relates a caſe on the authority of a phyſician that attended the ſervant of a druggiſt, who had become narcotic from powdering of opium. After much teaſing, friction, volatile ſcents, or ſalts, with other ſtimulants, and even muſic, he remained ſenſeleſsly ſoporific. At laſt, the application of vinegar on a ſponge to his noſe and mouth, produced the firſt effect of attention to what was doing. He then, ſenſible of its refreſhing power, ſeemed greedily to court its continuance, till an opportunity was given of farther proſecuting his recovery, by giving acids internally, and other aſſiſting means.

In page 341, we have remarked from Dr. John Leigh†, that acids given previous, but not after the taking of opium, counteracted its effects on the ſtomach.

* Lind on the Health of Seamen.

† Leigh on Opium, 1786.

The great quantity of opium taken by the Turks and Perſians, without injury or ſoporific effects on the ſyſtem, is uſually attributed to habit; and nothing is generally allowed for the abatement of its effects from the quantity of coffee they conſtantly drink.

Coffee is an aromatic aſtringent berry. In pages 211 and 275, we have ſhewn that the aſtringent principle of plants are an acid. Under this perſuaſion, we have exhibited ſtrong coffee in caſes of ſtupefaction from exceſs in adminiſtering opium, and always with ſucceſs, even beyond our expectations.

Dysentery.

The extreme prevalency and fatal tendency of dyſenteries in hot climates, and their frequent obſtinacy in this, joined to the ſucceſs attending the free exhibition of mercury in liver complaints, firſt in the Eaſt Indies, and afterwards in this country, probably gave riſe to its application in the cure of dyſentery.

The benevolent and laborious Dr. Lind, in his diſeaſes of Europeans in hot climates, was one of the foremoſt to recommend this practice; accordingly

ingly we find him, in the year 1780, mention in that work, that his friend, Dr. Bogue, had informed him, that the uſe of mercury in obſtinate dyſenteries had become a practice in India ſo far back as the year 1757 *; and that Dr. Bogue, on his reviſiting India in 1772, where he for three years ſuperintended the Naval Hoſpital, that when he was laſt in India, mercury was more in uſe on the Coromandel Coaſt, than it had ever been before.

In bilious fluxes, when the common remedies failed, it was uſed with great ſucceſs, either by unction or internally. Obſtructions of ſome of the viſceræ being then ſuppoſed to be the cauſe of the diſeaſe. Fluxes of long ſtanding were ſeldom cured without it. In all bilious complaints, emetics were not ſo frequently given as formerly, being only intended to cleanſe the ſtomach; but the greateſt dependence was on mercurials and purges at a few days intermiſſions, which was ſuppoſed to be the moſt natural method of carrying off the bile.

* Atkins, an author of ſome merit, at the time, gave calomel and opium in the fever and dyſentery, that raged on board the Swallow and Weymouth men of war, at the Coaſt of Guinea, in 1720. See his Voyage to Guinea, Brazil, and the Weſt Indies, and his Navy Surgeon, both publiſhed in 1734.

Opium is called, by *Bontius*, his *chief hope* in the cure of dyſenteries, &c. in his Eaſt India Diſeaſes, Batavia, 1692.

In the year 1787, we alſo find mentioned by the ingenious Dr. James Lind of Windſor, in *An Eſſay on the Efficacy of Mercury in the Cure of Inflammatory Diſeaſes, and the Dyſentery*. Dr. John Clark, in his excellent treatiſe on diſeaſes on long voyages, remarks too, although mercury had been propoſed for the cure of the dyſentery when he was laſt in India; yet it appears, that ſoon afterwards, its efficacy was confirmed in this diſeaſe. He obſerves, that, not having any correſpondence in that part of the world, it did not come to his knowledge until the year 1787, when he met with it in Dr. Lind of Windſor's eſſay, from which he makes the following quotation.

"One of the moſt uſeful purpoſes for which mercury has been given, is, that of curing dyſenteries—a practice, that has been followed with great ſucceſs on the Coromandel Coaſt. It was firſt made known to the different ſurgeons in the Carnatic by a letter ſent to each of them from the late Mr. Paiſſy, firſt ſurgeon of the Preſidency of Madras."

Their method is as follows: As ſoon as the patient begins to complain of ſymptoms of dyſentery, they give him repeatedly ſmall doſes of emetic tartar, till it operates upwards and downwards, and thoroughly cleans the ſtomach and bowels;

bowels; after which they begin to give mercury combined with ipecacuanha, in the following form:

R. Argenti vivi ſcrupulum,
Pulv. gum. arabic. ſcrupulos duos,
Aq. puræ, q. ſ.
Tere in mortar. marmor. ad perfect. extinct. globulorum, et adde pulv. rad. ipecacuan. drachmam. Fiat maſſa dividenda in pilulas lx. quarum capiat unam, tertiâ vel quartâ quaque horâ.

"This medicine they uſe, till the urine, which in the beginning is high coloured, becomes pale, which they look upon as a ſign of the diſeaſe being ſubdued; after which, a few opiates, and ſome ſmall doſes of rhubarb, mixed with abſorbent powders, generally complete the cure.

"During the courſe of this diſeaſe, they do not neglect to adminiſter emollient and ſtarch clyſters, and on the Malabar Coaſt, where they had not till 1780, got into the practice of uſing mercury in the cure of dyſenteries; if the patient had much griping, they put a bliſter upon the belly, which, they are of opinion, likewiſe prevents inflammation and mortification, the ſymptoms moſt to be apprehended in this diſeaſe.

"It is probable, from mercury preventing inflammation, and conſequently mortification, that

the above practice is ſo ſucceſsful. Mr. Wilſon, an ingenious ſurgeon in the ſervice of the Eaſt India Company, told me, when at Pondicherry, that he ſeldom loſt above two men in a year by dyſenteries in the battalion of ſeapoys to which he was ſurgeon, ſince he became acquainted with the practice of uſing mercury in this complaint; whereas before that, he frequently loſt in the battalion from twenty to thirty men by dyſenteries in a ſickly ſeaſon*."

† Dr. Balfour, who for many years reſided in Bengal, was in the practice of giving calomel in the acute dyſentery, after cleanſing the ſtomach and bowels by an infuſion of tamarinds with emetic tartar and manna; he adminiſtered eight grains of calomel with two of opium, at bed time, on the firſt day of the diſorder, and continued the ſame for four or five nights following, or longer, if the nature of the ſtools ſhould require it, and repeated the ſame quantity of calomel and opium at any time in the courſe of the diſeaſe, when judged requiſite. He at the ſame time gave in the morning a ſaline purgative, or caſtor oil, till the diſeaſe began to yield.

Dr. Clark judiciouſly obſerves, that the beſt

* London Medical Journal, vol. 8. p. 153.

† See his Treatiſe on the putrid inteſtinal remitting Fevers in 1790, p. 142.

correctors

correctors of bitter ſaline purges, are cryſtals of tartar or lemon juice with brandy, which render them more agreeable to every palate. This is undoubtedly a matter of no ſmall importance, where there is an abſolute neceſſity to continue them daily; beſides, in putrid caſes, ſuch additions muſt be conducive to the cure.

The food ſhould conſiſt of farinaceous ſubſtances, ſuch as rice-jelly (called in India *Congee*), water-gruel, ſago or ſalop, to which wine ſhould be added, even freely, when neceſſary to ſupport the ſtrength of the patient. The moſt proper drinks, are barley-water, thin rice-gruel; and when the gripes are ſevere and demulcients indicated, almond-milk, or a decoction of ſtarch, aſſiſted with gum arabic, and rendered palatable with cinnamon-water.

When it is conſidered, that inflammation and ulceration ſo often affect the inteſtines, it is not ſurpriſing that the feeble means hitherto propoſed have in ſuch caſes ſo generally proved ineffectual.

In preſcribing mercury in the dyſentery, the phyſician will be at ſome loſs with reſpect to the quantity, which may be requiſite to affect the ſyſtem, as he is in other complaints. In ſome patients, twelve grains of calomel, in divided doſes, will bring on ſlight ſymptoms of ſalivation. The majority, however, in this country, will bear from

xx. to xxx. grains; and in a few inſtances, it has been found neceſſary to preſevere in its uſe along with purgatives, till one drachm or more has been taken. The doſe of calomel, in the early ſtage of the dyſentery ſhould be always adapted to the violence of the diſtemper.

In the chronic ſtage of the diſeaſe, in which the patient is always conſiderably debilitated, a ſalivation ought to be carefully avoided, when from two to four grains of crude mercury extinguiſhed in gum arabic, with one or two grains ipecacuanha, and half a grain of opium, may be ſufficient for a doſe.

Diseases of the Liver.

* With reſpect to the *ſymptoms* of a diſeaſed Liver. On all occaſions, when the ſecretion of a bile is morbidly increaſed, diminiſhed, or irregular, it is clear, that this viſcus has not its natural action, and does not perform its proper offices. Theſe inſtances alone would affect almoſt every diſorder in that country†. But eſpecially

* Dr. John Peter Wade, on the Diſorders of Seamen and Soldiers in Bengal, 1793.

† India.

fever

ſever and dyſentery, moſt particularly in their chronic forms. The ſecretions of other bowels, however, are very generally deranged in a ſimilar manner. The liver ſhould be ſuſpected under every derangement of any of the bowels.

Head-ache, in every kind of form, is by no means an uncommon effect. Thoſe which are called nervous, will be always found connected with the ſource in queſtion. Periodical head-aches are frequent; thoſe which recur with obſtinacy, on riſing in the morning, are very ſuſpicious.

Obſtinate or periodical pains in either or both ears, are by no means of rare occurrence: frequent and ſevere thirſt, a bitter or unpleaſant taſte in the mouth, fœtid breath, eſpecially in the morning, various diſcolouration of the countenance, ſometimes yellow, at other times free from a yellow tinge; pale, but not clear; often a deadly leaden colour; ſometimes of a copper tinge; on ſome occaſions, a kind of mixture of all theſe in various proportions; frequent fluſhings of the whole face, or of particular parts only, eſpecially of a circumſcribed ſpot, in one or both cheeks.

Partial ſweats of the head, ſometimes of the forehead only; frequent giddineſs, or confuſion, on ſtooping particularly; ſenſe of weight in the head, ſometimes approaching to a degree of pain, eſpecially on moving ſuddenly, or on ariſing on the toes and falling

falling on the heels again with a jerk; frequent drowſineſs; the mouth generally foul, and covered with viſcid ſecretions; the fauces particularly foul, and often fœtid; the gums and other parts of the mouth liable to frequent ulcerations, which are extremely painful when touched, but not otherwiſe.

The ſalivary ſecretions irregular; the tongue very ſeldom perfectly clear, but of all degrees and complexions of foulneſs, though generally moiſt; ſometimes, however, very dry after ſleeping, and ſubject to ulcerations, like the other parts of the mouth; a remarkable degree of inaptitude to continued motion in the lower jaw, particularly evinced in chewing.

The eyes ſometimes yellow, generally muddy, and on ſome occaſions perfectly free from all tinge, clear, but not vividly clear as in health, and ſometimes of a ſlight bluiſh caſt.

Viſion, not quite ſo perfect as in health, eſpecially after looking any time at one object: in ſome inſtances, a general greaſineſs of the face, and a gloſſy appearance of the eyes; fluſhing of the noſe, and other catarrhal ſymptoms; ſometimes a diſcharge of blood, without any apparent cauſe.

All theſe ſymptoms will be found to attend affections of the liver in various proportions, and modes of combination, on different occaſions, but they are in general more decidedly characteriſtic

of

of that ſtate of the ſecretions of the bowels, which in Bengal, and probably all over India, is termed, *The Bile*; an appellation, which includes the morbid increaſe, diminution, or alteration of any of the ſecretions of theſe parts, conſequently the ſtate of the digeſtive powers.

All denominations of aſthma, dry, humid, nervous, have often proved ſymptomatic of the liver, both in the ſtrict and extended application of the term. Every alteration of the offices of the lungs, from a natural ſtate of reſpiration, from a ſlight ſenſe of impediment to a condition not far removed from ſuffocation.

A cough in all its varieties, generally dry—when moiſt, accompanied by excretions of every colour and conſiſtence; pain in both or either ſide, or in any part of the cheſt; a difficulty of laying on one or both ſides, and ſometimes of a recumbent poſture altogether; a ſtricture about the pharinx, or a weakneſs there.

When any number of the preceding ſymptoms prove obſtinate, it will always be prudent to have the liver in view.

The functions of the ſtomach are generally deranged in a variety of ways, during the exiſtence of this diſorder.

Theſe, which ſhould ſeem to originate from the abdomen, are much more deciſive as well as more numerous.

Dyſentery

Dyſentery ſtands foremoſt in all its varieties, from a ſlight diarrhœa to the worſt ſymptoms of griping, ſtrainings and diſcharges of blood and other matters.

The belly, often tenſe, hard, and painful, as well as much inflated; at other times ſoft though ſwelled, with pain on preſſure and hardneſs round the navel. The belly in many inſtances conſiderably ſunk, and often apparently of a natural form, without a ſingle circumſtance that indicates diſorder there.

Pain is not uncommonly felt on the left ſide only; and indeed the liver, in a morbid ſtate, extends far on that ſide ſometimes. Excruciating pain, ſhooting in every direction, from the lower belly up to the right ſhoulder.

It is very remarkable, that in moſt decided affections of the liver, there is often neither pain nor uncommon ſenſation of any kind in the part itſelf. In very acute caſes indeed, both pain and ſwelling commonly make their appearance; attack every part of the liver, conſequently the pain is then pretty high up and under the ribs; at the edge of the falſe ribs on either ſide, extending ſometimes from the pit of the ſtomach, in the courſe of the falſe ribs of the right ſide, to about the region of the kidney. This is very diſtinguiſhably felt by the patient, on preſſing your fingers in this direction.

Piles,

Piles, hæmorrhage, prolapſus ani, and dropſy, jaundice, gout, chronic rheumatiſm, black vomit, affected lungs, affected ſpleen. The region of the bladder is too often affected. Although the *pathognomonic* ſymptom is the pain in the ſhoulder; yet, there is ample experience of its not occurring. Colliquative ſweats and hectic heats indicate abſceſs or abſorption.

Treatment of Diseases of the Liver.

For the treatment of this prevalent diſeaſe, ſee what we have preſcribed in the inflammation of the liver*. For the encouragement of confidence in the young practitioner, and hope in the afflicted patient, we ſhall ſubjoin a few intereſting *caſes*.—The firſt is the caſe of a ſcorbutic, which precluded the uſe of mercury; yet a cure was effected by Dr. Bogue of Tichfield, as follows:

† A ſeaman, aged about thirty-five years, was ſent very ill of the ſcurvy, in the end of May 1759,

* Page 174, et ſequel, 182.

† Dr. Lind's Diſeaſes of Hot Climates.

to

to his Majeſty's hoſpital, under my care, in the abſence of the ſurgeon, at Negapatnam, a Dutch ſettlement on the Coromandel coaſt.

Soon after his coming on ſhore, he was ſeized with a ſcorbutic flux, and a few days afterwards, complained of a pain in his right ſide. In theſe circumſtances, as the flux continued, and ſeveral vivid ſcorbutic ſpots had appeared on his limbs, with a contraction of both knees, I judged it improper to give mercurials; ſo that a large tumour ſhewed itſelf on that ſide, pointing externally, with matter beginning to form.

I forwarded the ſuppuration with poultices, and on the 13th of July, in the cool of the evening, being about a month after his complaining of the pain of that ſide, I laid the tumour open about ſix inches, and let out near three pints of well digeſted matter.

I then introduced my hand into the left lobe of the liver, which I found almoſt intirely ſuppurated, and containing ſeveral honeycomb cavities, the edge of the liver adhering to the peritoneum.

He was diſpirited on the thoughts of its being opened, but bore the operation better than could be expected, in that low ſtate to which he was reduced. I cautiouſly filled the cavity with dry ſoft lint, and gave him a julep, with the tincture of bark, to take frequently.

The morning after the operation, there was a large

large diſcharge of good matter, and I found one ſinus leading obliquely down towards the navel, and another towards the back, each about two inches in length. I laid them both open to the bottom; and theſe were the only openings I had occaſion to make, though I found another ſinus leading towards the cheſt.

That day, I dreſſed him as before; and the next day, after having fomented, I threw into the cavity, an injection of barley-water and tincture of myrrh, which I repeated three or four times, until I thought the parts ſufficiently cleanſed of matter. I continued to dreſs with lint preferably to any other application, on account of its giving no uneaſineſs, and its abſorbing quality.

I gave him the bark in ſubſtance, as ſoon as his ſtomach would bear it. During the firſt fortnight, I dreſſed him twice a day, there being then a great diſcharge. The cavity afterwards filling up faſt, and the quantity of matter leſſening, he was dreſſed only once in twenty-four hours, but ſtill continued to take the bark. In this week, the wound was not more than an inch deep, and but two inches in length, florid granulations daily forming; and towards the end of Auguſt, the parts being almoſt cicatrized, the patient was ſent on board his ſhip to do duty; the admiral expecting every day to meet the French ſquadron.

He

He was killed on the 10th September following, in the action between the Engliſh ſquadron commanded by Admiral Pocock, and the French by Count D'Ache.

In hot climates, of all the *viſcera* in the human body, the liver is moſt ſubject to diſeaſe. It ſuffers from obſtruction, inflammation, and ſuppuration. It is a diſeaſe common all over India, frequent in Africa; but, as Dr. Blane informs us, it is not ſo common in the Weſt Indies. Although he makes this remark, he concludes, from its appearance in the fleet at New York in America, in the month of October; having arrived there with thirteen ſhips of the line, the weather had then begun to grow cold; ſeveral caſes of inflammation of the liver among the officers and men, who came from the Weſt Indies; that it muſt be owing to their having reſided there, diſpoſing to an inflammation of this organ, upon changing to a colder climate. Experience juſtifies this remark; caſes of an inflamed liver often occurring on return from theſe countries to England.

Repeated attacks of the remittent fever have been obſerved by Dr. Hunter and others, too often to produce dropſy, ſwellings of the liver or ſpleen, and frequently a complication of both theſe diſorders; the ſame thing holds good of intermittents. The mercurial that he gave for theſe ſwellings, was

the *mercurius dulcis*. In caſes of dropſies, quick ſilver rubbed down with an equal quantity of honey, or conſerve of hips, was given; the doſe from five to ten grains of the mas*, to which half, or even a whole grain of dried ſquills was added, to render it diuretic, repeated every other night, as circumſtances required.

It has been obſerved by Dr. Clark, that the remittent fever and dyſentery, when allowed to run out for any length of time, frequently terminate in abſceſs of the liver; and hence we may ſee the neceſſity of ſubduing thoſe diſeaſes ſpeedily, in order to prevent this dangerous conſequence. This gentleman found mercury equally ſucceſsful in inflammation and infraction of the liver in this country, and alſo in ſeveral caſes of jaundice, which had proved refractory to the common modes of treatment.

The diſeaſe of the liver has the greateſt tendency to impoſtumation. When the abſceſs points outwards, and the matter is diſcharged by inciſion, the patient has ſome chance of recovery; but when it burſts within the cavity of the abdomen, or in-

* Dr. T. Morgan, in his Mechanical Practice of Phyſic, publiſhed in 1735, recommends crude mercury divided in ſimilar manner, in doſes of ten or twelve grains, in hectic and and other affections of the lungs, liver, and abdomidal viſcera.

to that of the thorax, the caſe will almoſt always prove fatal.

Even in ſuch deplorable determinations of abſceſs in the liver, the patient muſt not be relinquiſhed; for when the ſtrength and ſpirits are ſupported, nature has wonderful reſources; and ſometimes ſuch dangerous caſes terminate favourably. In ſupport of this aſſertion, ſays Dr. Clark, I ſhall here introduce the two following caſes.

The *Ship's ſteward*, after recovering from the dyſentery at Calcutta, was ſeized with an obſtruction of the liver. Mercury was given in ſmall doſes, but was ſoon laid aſide as he became hectical.

In about ſix weeks after, he paſſed purulent matter with his ſtools. He gradually recovered his health, and every ſymptom of the diſeaſed ſtate of the liver diſappeared. As the matter was only voided in ſmall quantity, it is probable that the abſceſs was ſituated favourably for emptying itſelf by the *ductus communis*.

The other is the caſe of a maſter and owner of a veſſel, who had for about two years laboured under ſymptoms of a diſeaſed liver; fell into a confirmed jaundice, which reſiſted every medicine that had been preſcribed.

On the 27th of September 1788, I was firſt deſired to attend him, ſaid Dr. Clark. In his paſ-

ſage

ſage from London to Sunderland, he was ſeized with a violent ſhivering fit, ſucceeded by pain in the region of the liver, and he became feveriſh. When he came aſhore, Mr. Barns bled him, and preſcribed ſome other medicines. I found him ſtill feveriſh; his pulſe beat 120, but was rather feeble.

His countenance and whole body were yellow; his urine very high coloured, and his ſtools white. He was confined to his bed, and could only lie on his back, reclining towards the right ſide; he had a ſhort cough, a pain in the right ſhoulder, and a ſevere ſtitch in the right hypochondrium, whenever he coughed, or made a large inſpiration.

Upon examining the ſituation of the liver, I found its edge hard, and projecting beyond the falſe ribs, and the leaſt preſſure gave him much uneaſineſs. He was ordered to be bled; a bliſter was applied to the part, and calomel and opium, together with the ſaline draught, were preſcribed.

Theſe medicines only gave temporary relief; the ſuppuration advanced, and he began to cough up purulent matter in great abundance, mixed with bile; in the courſe of twenty-four hours, ſometimes exceeding three pints.

On the 25th of October, when I viſited him for the third time, he ſtill expectorated great quantities

of matter, had vomited above a pint of pure bile, and paſſed many bilious ſtools.

What he coughed up, he was ſenſible aſcended from the ſeat of the liver; but it required great force to be expectorated, and often excited vomiting. His countenance and ſkin now began to loſe the yellow tinge. But he was exceedingly reduced.

On the 13th of November, I again was deſired to viſit him. The hectic fever had abated; but being much emaciated, I ſtill had little hopes of his recovery.

His liver ſtill feeling hard, ſmall doſes of calomel, with opium, and ſtrong mercurial ointment, which Mr. Barns had hitherto managed in a moſt cautious and judicious manner, were adviſed to be continued as an alterative. He was alſo ſupported with milk, and cooling nutriment, and every thing was done to ſupport hopes of his recovery. His ſpirits, indeed, from the beginning, were wonderfully good.

During the whole ſuppurative ſtage, the tone of the bowels was kept up by infuſions of calomel and bark, and reſt procured at night by opiates. From the greateſt ſtate of emaciation, he gradually recovered, and ſtill (October 1791) enjoys perfect health. His colour is good, his fleſh plump; but, according to his own expreſſion, he feels every thing ſticking to his right ſide.

The

The marks of redundance of bile, are, a ſickneſs at the ſtomach; a ſenſe of ſcalding at the anus, when the ſtools are paſſing, and the yellow or green colour of the ſtools themſelves. It is apt alſo to excite ſymptoms of fever, ſuch as a foul tongue, a hot and dry ſkin, with thirſt.

When collections of it are ſuſpected, it is beſt to evacuate by vomiting; for it is thereby prevented from irritating the bowels, and from arriving at the inflamed parts, with perhaps, increaſed acrimony, acquired in paſſing through the whole length of the inteſtines*.

The proofs of this fluid being in a putrid, or acrimonious ſtate, are taken from the changes it undergoes in colour and conſiſtence. The natural colour of it is yellow; but it is often vomited green, and ſometimes of a dark brown colour, or almoſt black and of a ropy conſiſtence.

The quantity has generally been ſuppoſed to exceed what is natural; yet, we apprehend it is not an eaſy matter to aſcertain, how much bile is ſecreted in an healthy perſon; and unleſs that could be done, it is difficult to ſay, at what point the quantity diſcharged exceeds that of the healthy ſecretion†.

* Dr. Blane.

† See page 274.

The green colour of the bile is known to depend upon the acid in the ſtomach; for experiments have taught us, that the moſt healthy bile would acquire a green colour, if mixed with an acid liquor.

That an acid is often generated in redundance in the ſtomach, we have daily proofs, both in our taſte of what is brought up from the ſtomach, and in the teeth being ſet on edge by it*. The green colour, therefore, is not to be imputed to any acrimony, or bad quality in the bile, but to a diſeaſe in the ſtomach.

The dark brown colour of the bile, and ropy conſiſtence, are nothing more than natural changes, produced by its ſtagnating for ſome time in the gall-bladder and biliary ducts. The thinner parts of the bile are abſorbed, and what remains, becomes both of a deeper colour and thicker conſiſtence, as happens in other ſecretions. The great quantity of bile that is often diſcharged, is to be attributed to the reaching and vomiting. In ſea ſickneſs, the quantity of bile that is thrown up, is often as conſiderable as in the remittent fever; yet, it cannot be ſuppoſed the cauſe, but the effect of the ſickneſs.

A vomit, that operates ſtrongly, never fails to bring up a large quantity of bile, which does not appear until after repeated reachings and ſtrainings;

* See page 183.

the

the uſual contents of the ſtomach are firſt diſcharged, and after a time the bile.

The progreſs is the ſame in the remittent fever; the contents of the ſtomach are firſt thrown up, and if the vomiting continues, the bile afterwards makes its appearance. So far, therefore, is it from being the cauſe of the ſickneſs and vomiting, that it does not even find its way into the ſtomach, till the ſtraining has continued ſome time.

The large quantity thrown up may depend on two cauſes; the violent vomiting, which, in all caſes, excites a moſt copious flow of bile, and the operation of digeſtion being at a ſtand, the flowing of the bile into the duodenum is not promoted; for the diſtention of the ſtomach by the food occaſions a compreſſion of the gall-bladder, which not taking place, the bile is collected in quantity, and when vomiting comes to be excited, is of courſe more plentifully diſcharged*.

The quantity of the bile, as well as its ſuppoſed bad qualities, depending upon cauſes that have no neceſſary connection with the remittent fever, and occurring wherever theſe cauſes are to be met with, even where there is no fever†; it is not allowable to impute bile, or any change it is yet known to undergo, to the production of remittent fevers. Indeed, the diſcharge of bile is often

* See page 274. † See page 53.

entirely owing to the uſe of emetics, and is always greatly increaſed by them*.

Scurvy, &c.

As I have advanced, with ſome degree of confidence, my opinion of the ſanative qualities of *Land air*, and have alſo deſcribed the *Sea air* more impreſſive of impregnation with water, and more productive of *Scurvy* than the land air; and this, not merely in oppoſition to the opinions of ſome Engliſh, French, and Dutch authors; nor for the ſake of *novelty*, or any other motive; but with a view to throw ſome light on a ſubject ſo intereſting to navigators. Being more intent on eſtabliſhing new facts, than in forming of theories, as ſtated in the Introduction.

Feeling it incumbent on me not to paſs over this ſeeming ſingularity of opinion, as a mere aſſertion unſupported with reaſoning or facts, with the ſelf-importance of unqueſtionable authority; but what are curſorily interſperſed in the work, and which, without the preſent precaution, might probably paſs unnoticed.

* Dr. Hunter.

This

This treatiſe having for its object the three leading endemics of hot climates, *Fever*, *Flux*, and *Scurvy*; in which may be comprehended, all that regards the diſeaſes in thoſe latitudes, and that is intereſting to European navigators and ſettlers, which compriſes every deſcription of ſailors, ſoldiers, and travellers; it would be probably taking too wide a field for one volume, to enter farther upon the influence of climate, or the phenomena of air, weather, &c. common to *ſea* and *land*, in thoſe latitudes, than ſuch curſory remarks, as, in my opinion, are inſeparable from the ſubject.

To ſuch remarks on theſe ſubjects, and ſuch only, I meant to confine myſelf; but having an opinion of my own, grounded on experience and obſervation, I found myſelf unable implicitly and ſilently to give it up on any other terms, than a conviction that I was wrong.

And even what I have advanced different from the opinions of thoſe reſpectable men, who have either thought or found it otherwiſe, it is with due deference to ſuch reſpectable authorities; and on conviction, ſo far from being aſhamed of it, I ſhall as readily come over to their way of thinking, as I have followed them in their way of acting, or mode of practice, throughout this work.

Where I have differed from them in their practice, it will be found limited to but very few particulars;

particulars; and the obvious reſult of having recommended ſome particular medicines, which I have experienced to be ſpeedy in their operation, and efficacious in their effects.

* In the year 1748, upon the breaking up of the Britiſh Camp in Flanders, the cavalry were cantoned in the unhealthy ground about *Bois-le-Duc*, and ſoon after were attacked with a general ſickneſs, occaſioned by the late inundations of that part of the country.

Dr. Horne, then ſurgeon to Cope's Dragoons, obſerves†, that the troops ſuffered in proportion to their proximity to the marſhes; and that univerſally, the nearer to *Bois-le-Duc*, the more violent was the diſtemper. The number of the ſick, by very accurate obſervation, being found exactly to correſpond with the dampneſs of their ſituation, and of the air.

To put this matter beyond all doubt, this ingenious gentleman provided himſelf with a good *Hygroſcope*, by which he carefully meaſured every day the degree of moiſture and dryneſs in the air.

Upon comparing his tables with the regiſter he kept of the ſick, he found, that the progreſs of the diſeaſe kept an exact pace with the humidity of the air.

On the 19th of June, they left the camp, and

* Lind's Preſervation of the Health of Seamen.

† Dr. Horne Diſſertat. Medica. inaug de Febre remittente.

from

from that day to the 12th of July, the air being dry, not one ſoldier was affected with an ailment.

On the evening of the 20th, the *Hygrometer* indicated a great degree of moiſture in the air, and that very night, the epidemic ſickneſs (viz. the remittent fever) began among the troops, three dragoons of Cope's regiment being ſeized with it.

During eight days afterwards, the air continued extremely moiſt, and the number of the ſick was proportionally increaſed. The ten following days being dryer, the number of the infected viſibly diminiſhed. But two very moiſt days ſucceeding, the patients were again greatly increaſed.

In a word, the ſame quality of the air, which differently affected the inſtrument, did alſo every day in like manner affect the health of the men. How far this may apply to what follows, I leave to the better judgment of the reader.

The air of the atmoſphere is more denſe and heavy, the nearer it is to the ſurface of the earth and ſea; and porportionally more expanded and lighter, as it recedes from or aſcends above the ſurface of the earth and ſea.

The air of the atmoſphere is capable of being ſaturated or charged with water to a conſiderable degree. It is alſo capable of being charged or ſaturated with phlogiſton, and this, after being ſaturated with water.

Water

Water is capable of being charged or ſaturated with the air of the atmoſphere to the extent of one thirtieth part of the water employed, and with fixed and inflammable air, &c. without any ſenſible increaſe of its bulk. The elaſticity of the air abſorbed is not deſtroyed, but only diminiſhed, or ſuſpended. On the application of heat, it recovers its expanſive force, and is diſengaged from the water.

The atmoſphere is continually receiving water, in the form of an inviſible vapour, aſcending from the earth and the ocean, by the ſolar heat of the ſun, and evaporation of plants; and at the ſame time impregnating with the various exhalations ariſing from fermentation, putrefaction, combuſtion, and other phlogiſtic proceſs, together with the perſpiration and reſpiration of animals, terreſtrial and aquatic*.

The particles of earthy, ſulphureous, ſaline, vegetable and animal ſubſtances, ariſing from the earth and the ocean into the higher regions of the atmoſphere, apparently combined into one homogeneous maſs of vapours, form clouds, and aſcend and deſcend, and are carried to and fro, according to the various changes of the atmoſphere, com-

* The inhabitants of the deep perſpire from their lungs, or gills—the breath of whales has been known to be the cauſe of inſtant death. See Don Ulloa's Voyage.

poſing

poſing lightning, and all the meteors and phenomena of the air*.

Diffuſed and united with water, undergo various reſolutions and combinations. When the vapour of water becomes viſible, it is no longer vapour, but fog. And viſible exhalations are an aſſemblage of very minute drops, formed by the condenſion of vapour; which drops are ſo ſmall, that they can ſcarcely overcome the reſiſtance the air makes to their deſcent, and are ſuſpended in the form of low clouds and fogs.

In which form, or in that of dews, or rain, or ſleet, or ſnow, they return to the earth and ocean again, and become food for plants, &c. And in this perpetual round do they continue to circulate, and probably without the ſmalleſt deſtructibility of matter, fulfilling the wiſe ends of an all-diſpoſing Providence.

With reſpect to the currents of air, or *winds* formed by the different denſity and rarity of the atmoſphere, and its changes of heat and cold, and ſolar influence; I ſhall chiefly confine my obſervations to the *ſea and land breezes*, ſo familiar to navigators and ſettlers, and as being ſo much more pertinent to the ſubject in hand†.

* See page 220 and 222, et ſeq.

† See page 216 to 222. et ſeq.

About

About which, much has been ſaid by the medical writers on the diſeaſes of hot climates, and long voyages. Much ſtreſs has been laid by theſe gentlemen upon the inſalubrity of the *land breezes*, or the wind coming from the ſhore, impregnated with the unwholeſome exhalations of the land, and, no doubt, with the greateſt veracity and juſtice*.

The invigorating, ſanative qualities of the *ſea breeze* has been equally highly extolled, and with equal veracity and juſtice. Acquainted with the effects, let us for a while conſider the cauſes; and without gainſaying theſe gentlemen, ſhew, that the land air is more healthful and bracing than that of the ſea, and in a comparative view, leſs productive of the diſeaſe called *ſcurvy*.

The diurnal revolution of the atmoſphere is influenced by the preſence and abſence of the ſun; that is, ſuch part of the earth and ocean, as forms the atmoſphere or part of the globe, enlightened at one time by the ſolar preſence, which we call day; and his abſence we term night.

It is by this alternate influence, that fumes, exhalations, and vapours aſcend, viſible and inviſible, phlogiſtic and dephlogiſtic. It is to the aſcenſion of theſe, that the air of the ſurrounding atmoſphere becomes more or leſs vitiated; and that, in propertion to the putrid ſlime and mud of

* See page 37.

ſome

ſome low ſhores; ſtagnate water of corrupting marſhes, particularly ſalt marſhes; the unventilated groſs impregnated foul air of impenetrable thickets and woods; the crude exhalations of deep vallies; the heated ſteams ariſing from ſandy flats, on which the tide or land floods of the rainy ſeaſon leave or ingender a ſtinking, corrupt, and exceedingly offenſive mud or ſlime among the ſedge and mangrave thickets, that grow in theſe ſituations, or brought down by rains; which, in their deſcent, clear the atmoſphere of its floating animalculi and inſects, and waſh down from the inland woods, the periſhed and corrupting vegetables, &c. &c. &c.

Theſe are the allowed cauſes of a foul impregnated *land breeze*, not unfrequently charged with low hovering clouds, and offenſive fogs, ſurcharged with the vitiating vapours ariſing from theſe foul humid ſituations, accompanied with heat.

With reſpect to the ſcorbutic influence experienced in the *narrow ſeas*, and in cruiſes along their neighbouring ſhores, theſe cauſes can apply but in a very diminiſhed degree, from the difference between a *hot* and a *cold climate*. Here the prediſpoſing cauſes are *cold* and *moiſture*; and here the low clouds and fogs have alſo their influence, and the low, flat lands, ſwamps and marſhes alſo, aſſiſted by blowing weather.

All this is granted; taken in the groſs, what does

does it all amount to?—to exactly this, *that heat and moiſture*, and *cold and moiſture*, or a *hot climate and a cold climate*, are both productive of *putrid* and *ſcorbutic* diſeaſes; and that ſuch is the influence of climate; this is alſo granted.

But has not every country its healthy and unhealthy places; whether it is ſituated in the torrid, the temperate, or the frigid *zone*? Surely, I muſt preſume this granted; as the teſtimony of every intelligent, obſerving traveller and navigator bears evidence to the fact.

In the rainy (commonly the ſickly) ſeaſon in *Africa*, the *Eaſt* and *Weſt Indies*, and *South America*, that is, in all places within the *tropics*, or *torrid zone*, do not ſuch of the inhabitants as can afford it, uſually retire to theſe more healthy ſituations, during thoſe ſeaſons of endemical diſeaſe?

And in all parts and places, which have not thoſe evident ſigns, and manifeſt tokens of being unhealthy, juſt enumerated; do not the ſcorbutic and diſeaſed ſailor and paſſenger feel and enjoy the ſuperiour qualities and ſanative influence of the *land air*? and that they are in general reſtored to health, by its ſalutary influence, and the bountiful, often the ſpontaneous products of nature, to be every where found in theſe climates; the works of thoſe Engliſh, French, and Dutch authors, before alluded to, will themſelves bear teſtimony

of

of the fact; conſequently, I refer them to their own writings.

Should it be uncandidly replied, that this is but a negative proof at beſt, of the inſalubrity of the *ſea*, compared to the *land air*, I muſt go back to the *land* and *ſea breezes*, and follow up the chain of cauſes.

The effects of the diurnal influence of the ſun's vertical heat, reflected by the ſurface of the *earth* and *ocean*, and particularly by the former, where the abſorption of heat is leſs in proportion than the latter, is to rarefy the air of the atmoſphere in contact with, and neareſt its influence; the lower ſtrata of which is always the moſt pure and denſe, when unmixed with foreign exhalations.

The power of this reflection, and conſequent rarefication increaſes, as the day advances to its meridian heat. The rarefied air, becoming lighter, is continually detaching from the heated ſurface, and aſcending through the heavier incumbent ſtrata of air, which, from its gravity, is equally preſſing in its deſcent, and which, becoming rarefied alſo, aſcends in ſucceſſion, to make way for a freſh ſtrata of unrarefied air.

When the incumbent air is in this manner heated and rarefied, and ſo weakened in its ſpring or elaſticity, as no longer to be able to continue iſſuing forth form the land, in the form of a *land breeze*; it is overcome, by the now denſer and

more elaſtic air of the ocean, on which, the reflection of the ſun's heat has not been ſo potent, and which then breaks in like a torrent upon the land, in the form of a ſea breeze. This happens ſooner or later in the day, in porportion to the ſtrength of the counteracting cauſes, which are antagoniſts to each other.

The breathleſs inhabitants, who had been panting, like fiſh out of the water, in this heated, rarefied, non-elaſtic air, unequal to the purpoſes of reſpiration, are now immediately relieved by the denſer, cooler, yet moiſter *air* of the *ſea breeze*; which laſt quality is now no inconvenience, and not attended to, on the now arid land, where the reſtorative effects of the ſea breeze make the the moſt ſenſible impreſſion on their feelings.

The *ſea breeze* uſually continues to fan them, with more or leſs vigour, until the going down of the ſun, or ſome time longer, in porportion to the heat of the day.

The reflected heat of the ſun withdrawn, the air, which, during the day, had from its rarity and levity aſcended higheſt into the atmoſphere, in the abſence of the ſun's heat, begins to condenſe, and in proportion to the rapidity with which it condenſes, which is always correſpondent to the perpendicular height it is piled up, deſcends in the ſame ratio of rapidity, accelerated by the increaſing cold

cold of the night, until, in its turn, it, from its denſity, elaſticity, and coldneſs, overcomes the *ſea breeze*, and blows from the land in all directions, which is very properly called the *land breeze*.

And which it continues to do, with greater or leſs force, in proportion to the heat of the preceding day, until it is overcome by the *ſea breeze* ſetting in, as before deſcribed.

Such is the diurnal *cauſe* and *effect* of the ſolar influence in tropical latitudes, in the conſtant and uniform production of the *ſea* and *land breezes*.

It is very evident, that the *land-breeze*, iſſuing from cleared, healthy, or high lands, will be drier, purer, and more ſanative than the *ſea breeze*, from the advantages of culture, and a ventilated vegetation, and from a ſtill more weighty cauſe, immediately to be inſiſted on*.

It is equally as certain, or evident, that the *land breeze*, iſſuing from a moraſſy, foggy, woody, unventilated, low, ſwampy, ſlimy, muddy, uncultivated ſoil, will be equally groſs, impure, and unhealthy.

Dr. Alexander Wilſon, the ſcientific and ingenious author of *Obſervations on the Influence of Climate*, to which work I am much beholden, has advanced a poſition, on the unimpeachable authority of *Dr. Prieſtley*, that ſeems diametrically to militate againſt all I have advanced on the ſupe-

* See the laſt paragraph of page 452.

riority of the *land* over the *ſea air*, that has not been ſupported by experience.

Dr. Wilſon, in the following words, remarks, that in "Dr. Lind's treatiſe on the ſcurvy, he has given many inſtances, where a moiſt atmoſphere, conjoined with a very moderate degree of cold, either at ſea or land, has been productive of *ſcurvy*. And why ſeamen in long voyages are more ſubject to it than men at land; the ſame author makes clearly to ariſe from their being more expoſed to theſe cauſes, together with a greater want of proper vegetable correctors." On which the Doctor obſerves,

"From what that gentleman (Dr. Lind) hath ſaid, it is evident that ſea air does not diſpoſe the body to a ſcorbutic tendency; and we are, for the following reaſons, of opinion, that it rather counteracts a putrid diatheſis.

"Agitation with water will depurate phlogiſticated air; and the more any air is freed from its phlogiſton, the greater load it will carry off from the lungs, and the longer it will ſupport animal life*."

After

* Dr. Prieſtley ſays, "Since, however, water in thoſe experiments muſt have imbibed and retained a certain proportion of the noxious effluvia, before they could be tranſmitted to the external air, I do not think it probable, but that the agitation

After this quotation, Dr. Wilſon goes on remarking; "We are therefore led to ſuppoſe, that the ſea air is more dephlogiſticated than that of the land. This opinion is much confirmed by an obſervation made by moſt writers on the ſcurvy; which is, that this diſeaſe rages moſt in narrow ſeas, and channel cruiſes, and in ſhips ſtationed on coaſts. Some cauſe muſt produce this difference; and it ſeems, no other than a very moiſt, impregnated ſtate of the air, in ſuch ſituations both of which are the effects of vicinity to the land.

"From this view of the cauſes of ſcurvy, people on ſhore are protected from it more effectually than thoſe at ſea, by the conveniencies of life, and vegetable food. Were this wanting, and the perſonal expoſure equally great and frequent, there is little doubt, but it would be as violent on land as at ſea."

Strong as this is, in oppoſition to this one poſition of my doctrine, I ſhall, before I reply, ſtate it ſtill ſtronger; and that, too, in the words of the ſagacious and indefatigable philoſopher, Dr. Prieſtley*.

agitation of the ſea and large lakes may be of ſome uſe for the purification of the atmoſphere; and the putrid matter contained in water may be imbibed by aquatic plants, or be depoſited in ſome other manner." Prieſtley on Air, vol. i. p. 98.

* See page 216 and 222 of the Treatiſe, et ſequel.

Dr. Prieſtley ſays, "*That by long continued agitation in water*, he has reſtored air, vitiated by reſpiration, putrefaction, combuſtion, calcination, &c." The compiler of the Treatiſe on the various kinds of permanently elaſtic Fluids, or *Gaſes*, ſecond edition, 1779, very judiciouſly aſks, "Was this melioration produced by the water ſeparating the vitiated part of the air from the reſt by abſorption, or by the agitation effecting a kind of circulation between the external air and the vitated air, included in the jar; by which means, much of the former might be received into the veſſels, while part of the latter might be abſorbed by the water, and thrown out into the open air* ?"

The event juſtified this reaſoning: for theſe experiments and obſervations, both taken from the Doctor's firſt volume, are poſitively contradicted in the ſecond volume of the Doctor's works on this ſubject. See what has been ſaid under the head ſcurvy in this Treatiſe, on the following experiment and obſervation of Dr. Prieſtley†.

"*Dr. Prieſtley has found that pure air is conſiderably depraved by agitation in the pureſt water*‡."

Nothwithſtanding that the Doctor has written two more volumes on the ſame ſubject, he has met

* Page 23.

† Page 222.

‡ Vol. ii. p. 96.

with

with nothing in the courſe of his experiments to contradict a poſition, laid down on the fulleſt experience; for which reaſon, I think it concluſive.

If we conſult the Doctors Lind, Roupe, Blane, Clark, &c. &c. &c. and the numerous quotations they cite, we ſhall find, that they uniformly concur in opinion, that tempeſtuous weather at ſea indues the *ſcurvy*, *fever*, and *flux*; the three endemics of long voyages and hot climates.

The violent agitation of the water of the ocean in ſtormy weather, muſt neceſſarily blend much of the water of the ſea with the incumbent and equally agitated air of the atmoſphere.

In proportion as the ſtrata of air, neareſt the ſurface of the ſea, is ſaturated with water, it becomes ſpecifically lighter*, and is ſucceeded by another, and another ſtrata of air, until the incumbent atmoſphere is ſo impregnated with water, that the daſhing of the clouds, which are more or leſs electric, like the daſhing of the waves together, brings a fret or ſhower of rain, with every ſquall of wind.

The inſalubrity of ſuch a humid, ſurcharged

* When the air of the atmoſphere diſſolves water, &c. its volume is increaſed, and the dilatation it ſuffers is greater in proportion, &c. See Mr. KIRWAN on Phlogiſton, note by Mr. Monge, p. 193. 1789.

atmoſphere, may be gathered from the obſervations of every one of the beforementioned authors, and from the Treatiſe on elaſtic Fluids, juſt mentioned.

" Almoſt all exhalations, vapours, and fumes, when in conſiderable quantity, make the air unfit for reſpiration.—*The vapour of pure water threw a bird into great anxiety**." It has been premiſed, that air is capable of a certain degree of ſaturation with moiſture as well as phlogiſton; and when the degree of its impregnation with humidity is conſiderable, the neceſſary diſcharge of moiſture from the lungs is impeded in proportion; and the diſcharge of the vapour or moiſture of the breath is as neceſſary to free reſpiration, as the diſcharge of the phlogiſtic principle.

It is only by the effects experienced in tempeſtuous weather at ſea, in inducing the ſcurvy, &c. that we can eſtimate the extent to which the incumbent atmoſphere is vitiated. Except thoſe gentlemen who are provided with *eudiometers* and *nitrous gas*, or the materials for making it; and a proper balance and *apparatus* for determining, and weighing to what extent vitiated, and how highly charged with moiſture, the air of the atmoſphere may be under ſuch circumſtances.

If medical gentlemen, and others of a ſcientific turn, beſides a barometer and thermometer, were

* See Dictionary of Chemiſtry, on Gaſes.

provided

provided with accurate eudiometers, hygrometers, and electrometers, for determining the denſity, heat, ſalubrity, and quantity of moiſture, and electric or phlogiſtic matter in the atmoſphere, in calms, tempeſts, and in different latitudes and longitudes, &c. they would be highly recompenſed in the pleaſure and information it would afford, independent of the ſafety and ſecurity annexed to being perfect maſters of the qualities of this *pabulum vitæ*, in all climates inſeparable from our exiſtence.

There are many vapours, fumes, and exhalations, to which the air of the atmoſphere is a vehicle, or fluid, through which they are diffuſed or diſperſed, odorous and inodorous, as diſcoverable to the organ of ſmelling; by the agency of the air, they are wafted from place to place, leſſening in their force and ſcent, until totally loſt to the ſenſes by ſolution, ſaturation, or decompoſition, in the aerial fluid in which they floated, or united by their affinities to other matter.

Theſe impregnations, pleaſing or offenſive, ſalutary or inſalubrious, mingled or diſſolved in the atmoſphere, &c. I muſt allow, are in no great degree within the range of inſtrumental accuracy*;

* Except the trying the ſalubrity of the air by nitrous gas, and eſtimating the quantity of moiſture in the atmoſphere by the balance, or by means of vitriolic acid. One hundred cubic inches of common air weigh 31 grains, determined by Mr. KIRWAN.

but

but even, in the limited manner I have propoſed, agreeable to the means in our power, that modern philoſophy has furniſhed us with, appears to me a very deſirable thing, and as ſuch only have I recommended it.

Dr. Prieſtley and others have obſerved, that common air loſes about one fourth of its bulk, by mixing it with nitrous air, or gas. This alſo happens by any proceſs capable of phlogiſticating it equal to combuſtion. Not only the air diminiſhed by combuſtion, or in which inflammable bodies are burned, but alſo air diminiſhed by reſpiration, or by the exhalation of phlogiſtic fumes of any other ſort, or by putrefaction, or fermentation, are noxious to animal life, or are incapable of diminiſhing nitrous gas, which is the diſtinguiſhing property of reſpirable air.

* Nothing, ſay the French philoſophers and chemiſts, who call themſelves *antiphlogiſtians*, ſhews more the inſufficiency of the antient theory, than the forced explanations which they are obliged to give of theſe experiments on water.

† The weight of the water, ſay they, which we obtain in burning 15 grains of inflammable gas, and 85 of vital air, amounts exactly to 100 grains.

* Chemical Nomenclature, 1788.

† Mem, Acad. des Sciences, année 1781, p. 269, & ſuiv, 498.

But

But in 100 grains of air, there cannot be 100 grains of water; or it muſt be ſaid, that inflammable gas is water, and that vital air is water; and that conſequently, theſe two aeriform fluids are the ſame thing; which is contrary to reaſon, becauſe it is probable, that two bodies, which have very different properties, are not one and the ſame thing.

There is another experiment, which ſubverts all this ſyſtem of explanation; the revivication of metallic calces in inflammable gas, by the means of a burning glaſs. If under a glaſs bell, or jar filled with mercury, and dipped in mercury, be introduced a pint, that is to ſay, two grains weight of inflammable gas, and then be introduced a metallic calx, and that the focus of a burning glaſs be made to fall upon it, the inflammable glaſs becomes totally abſorbed, at the ſame time the metal revives, and a conſiderable quantity of water is depoſited both on the ſides of the bell or jar, and on the ſurface of the mercury.

It has not yet been determined exactly, what quantity of water is obtained in this operation. But it is at leaſt proved, that it far exceeds the weight of the inflammable gas employed; therefore, it could not have been contained in this gas, for it would be abſurd to ſuppoſe, that two grains of inflammable gas could contain eight or ten grains, or even more of water, in diſſolution.

The

The Engliſh philoſophers and chemiſts, or *phlogiſtians*, remark, in regard to the theory of the decompoſition and recompoſition of water; ſay they, the experiments which ſupport it are brilliant and capital, without doubt, but the concluſions are deduced merely from the comparative weights of the gaſes, and of the water which they produce: it appears to us, ſay they, that too little attention is paid to that of the *matter of heat**, becauſe its weight has not yet been rated.

Nevertheleſs, the enormous quantity of heat and light, which diſengages during the combuſtion of the two airs, cannot be looked upon as nothing. Why ſhould not the heat, that is combined in two very different ſtates, in vital air and inflammable air, be regarded as the diſſolver of the water, which their combuſtion has produced?

Does not what is already known, and what is every day diſcovered of the matter of heat, the different ſtates of fluidity, of viſible and inviſible vapour, and aeriform expanſion, through which it ſucceſſively and continually makes water paſs, lead us, and, in a manner, force us to admit this diſſolution and its precipitation?

When in a ſummer's thunder ſtorm, the heavens

* See the Memoirs on the Combination of the Matter of Fire with evaporable Fluids, and the Formation of elaſtic Fluids. Mem. Acad. des Sciences, année, 1777, p. 420 & 595.

become

become obſcured by a maſs of thickening clouds, dark and confuſed, a ſudden diſcharge of thunder inſtantaneouſly breaks the combination; and when, in a ſecond, this immenſe cloud burſts, melts, and covers the ſurface of the earth with a deluge of water: this cannot be a generation.

It is as natural to ſuppoſe, that this water, firſt diſſolved and volatilized by the heats of ſummer, and thereby put into a ſtate of expanſion in the atmoſphere, by the aid of the ſame heat, and of the different ſtates on which this matter, ſo active, ſo ſubtile, ſo light, and ſo inclined to combination can enter, finds itſelf precipitated from theſe different combinations by the great *electrical* diſcharge which is made in the clouds, and which we perceive inſtantaneouſly to produce its effect!

We ſhall go no further; we ſhall only ſay, that when we permit ourſelves to make theſe reflections, we did not pretend to oppoſe the new theory, rather than to defend the old; ſupported by the *phlogiſtians*, moſt of the Engliſh, and ſome of the German philoſophers and chemiſts, and ſome of the French alſo, who, from theſe reflections, infer, that the water obtained from inflammable gas and vital air, may in like manner be only water, condenſed and precipitated from the two gaſes, in which they ſuppoſe it to have been held in diſſolution.

But

But we, ſay they, that is, the *antiphlogiſtians*, can eaſily ſubvert this concluſion and compariſon. In the experiments on the combuſtion of the two gaſes, and the production of water, we obtain water, weight for weight. But in the example which they cite, it is very different; for, in the moſt violent thunder ſtorms, there ſcarce ever falls an inch of water: and even if we ſhould ſuppoſe, that more could be precipitated; if we ſhould ſuppoſe that the atmoſpherical air could deprive itſelf of all the water it contains; yet, the quantity of water, according to the experiments of *Mr. de Sauſſure*, would only amount to one fiftieth part of the atmoſphere's weight.

There would then remain, as the reſult of this great experiment, forty-nine parts out of fifty, while, after the combuſtion of the two elaſtic fluids, there remains no reſiduum at all, at leaſt, when they are pure; and the weight of the water is exactly equal to that of the two gaſes. We, therefore, may reaſonably think, that the water diſengaged in a thunder ſtorm had been maintained in a ſtate of diſſolution in the air, and that ſome cauſe or other had operated its precipitation.

Moreover, it is not merely by the means of recompoſition, that we have been enabled to diſcover that water is a compound body, and to determine the nature of the principles which enter into

into its combination. For the component principles of water are again found by the analyſis, by the decompoſition of water; ſo that, in this argument, we have the very utmoſt of chemical demonſtration.

We need only preſent to the water any ſubſtance that has a greater affinity with the baſe of the inflammable gas, or with the baſe of the vital air, to operate the ſeparation of the conſtitutive parts of the water; the water becomes decompoſed, and one of its two principles, which does not engage in the new combination, unites with the *matter of heat**, and appears in the form of gas†. *The great phenomena of the nutrition and growth of animals and vegetables, of the different kinds of putrefaction, fermentation, reſpiration, &c. &c. &c, afford a multiplicity of examples of theſe decompoſitions.*

The new theory, we ſhall not deny, has its advantages over the old. It agrees better with the mutual action of the principles of different bodies: for example; this vital principle, the aliment of life and flame, which paſſes from the

* See the Memoirs on the Combination of the Matter of Fire with evaporable Fluids, and on the Formation of elaſtic Fluids. Mem. Acad. des Science, année 1777, p. 420 & 505, and ſee Memoir ſur la Chaleur. Acad. des Sciences, année 1780, p. 355.

† Mem. Acad. des Sciences, année 1781, p. 468.

air

air into acids, and from the acids into a variety of combinations, from which at laſt it is extracted by art, and made to appear again in the form of vital air; and the new theory owes theſe advantages to preciſion, and to the exact calculation, to which the perfection of modern apparatus has reduced the method of analyzing*.

We have ſhewn, under acids, page 211, and under ſcurvy, page 275 of this treatiſe, that the aſtringent principle in vegetables is an acid; and here we ſee, that the vital principle, or vital part of the atmoſphere, is the baſis of acids. See page 196 and 297.

† When Europeans arrive in the hot latitudes, their bodies are not for ſome time ſufficiently relaxed, to diſcharge their perſpiration freely‡; hence ariſe what is called ſeaſoning, which is uſually a fever.

The great evacuation the patients ſuffer in the courſe of their cure, relaxes the veſſels, and perſpiration becomes thereafter free and eaſy; this is the change or degree of relaxation meant by ſeaſoning, or being habituated to the heat of the climate.

* Chemical Nomenclature, 1788.

† Dr. Alexander Wilſon's Obſervations on the Influence of Climate, publiſhed in 1790.

‡ Lind's Means of preſerving the Health of Seamen, 1757.

* *Relaxation*

* *Relaxation* of body may be conſidered as a certain degree of putreſcent tendency, which tendency ſeems the cauſe of almoſt all the endemic diſeaſes of the torrid zone. We have already particularized that ſpecies of putreſcency which ariſes from debility, and which takes place in warm climates from a crude vegetable diet.

Scorbutic habits, rather than ſcurvies, are alſo frequent from a too much animalized ſtate of the body, and an impregnated atmoſphere. Diarrhœas and dyſenteries, from crude vegetable food and relaxation, are alſo very common.

Putrid fevers, from ſuppreſſed perſpiration, and an impregnated atmoſphere, are exceedingly general; by which the matter that ſhould be diſcharged from the *ſkin* and *lungs* is retained, and theſe operate readily from the circumſtances of climate.

Nervous diſeaſes are alſo the effect of relaxation; conſequently, frequent in warm countries. The diſagreeable, and often highly putrid ſmell of the diſcharge from bliſters in this diſeaſe proves the putreſcent tendency of the humours.

† The *tetanus*, or locked jaw, from ſlight wounds, is moſt common between the tropics, and ariſes from an exceedingly irritable ſtate of the nerves.

* See page 215 of this Treatiſe, and Alteration in the Text for that page in *Errata*, &c. et ſeq.

† See page 80, and Tetanus in the Poſtſcript.

It is a fact well eſtabliſhed, that the ſummer fruits and green aceſcent vegetables of thoſe climates are ſure remedies in the *ſcurvy*, provided the proper diſcharges from the body are free and regular; of all which, perſpiration by the ſkin and lungs is of the greateſt conſequence*.

Where theſe are copious, the ſcurvy can never riſe to a great height; and from this cauſe alone, the diſeaſe in the tropical latitudes ſeldom runs beyond what may be called a ſcorbutic tendency.

In theſe latitudes, the diſcharge by the lungs is, from the impregnated ſtate of the atmoſphere, more moderate than in colder climates; and did not the abundant perſpiration by the *ſkin* make up for this effect, *ſcurvies* would there rage with their greateſt violence.

This, indeed, is always the caſe, when perſpiration is interrupted at *ſea* by the addition of *moiſture* to latent *heat*†, too frequently experienced in foggy, tempeſtuous weather, on long voyages in theſe latitudes.

For we have obſerved, that air is capable of a certain ſaturation with moiſture, as well as phlogiſton or heat; and when the degree of its impregnation with humidity is conſiderable, the neceſſary diſcharge of moiſture from the lungs is im-

* See pages 215, 230, and 247, et ſeq. paſſim.

† Mr. KIRWAN.

peded

peded in proportion, and the diſcharge of this vapour is as neceſſary to free reſpiration, as that of the phlogiſtic principle.

It is in this way, we apprehend, that air, by a load of moiſture, is unfitted for free reſpiration*, and will even extinguiſh a candle†.

From theſe obſervations, we learn of what conſequence perſpiration is, either in preventing this diſeaſe, or promoting its cure. The aceſcent fruits, and other vegetables, which are to be found every where in theſe climates, afford the moſt effectual remedies; and the particular propenſities of the diſeaſed abundantly point out to them their utility.

From the frequency of theſe remedies, and the free perſpiration in theſe climates, one might be led to ſuppoſe, that even a ſcorbutic tendency would rarely happen; but the caſe is far otherwiſe.

* Air impregnated with vapour of pure water, threw a bird into great anxiety. See Dictionary of Chemiſtry of Gaſes, p. 16.

† See Prieſtley's Miſcellaneous Obſervations, vol. p. 159.

*A Fatal Scurvy in the East Indies.

Extract of a Letter from the Surgeon of the America Ship of War.

"*Manila in the Iſland of Luconia,*
"*11th November,* 1762.

"Our long cruiſe, in expectation of *Commodore Keppel's* arrival, in order to attack the French ſettlements at *Burbon* and *Mauritius*, proved very fatal to our *Eaſt India ſquadron*, having loſt on our return to *Madras*, *eight or nine hundred brave fellows*, by an extraordinary ſpecies of ſcurvy. And, as the crew of the *America* was as much, if not more afflicted with it than any other ſhip, ſo I am enabled to furniſh you with a more minute detail of the fatal and diverſified ſymptoms of this calamity.

"The diſeaſe moſt commonly began with a ſoft ſwelling of the legs, which aſcended to the thighs, enlarging them to an enormous ſize. This ſwelling afterwards extended itſelf to the belly, and *ſcrotum*, gradually mounted up to the breaſt, and

* Extracted from Dr. Lind on the Scurvy, p. 278, the fourth edit. 1772.

ſometimes

ſometimes reached even to the head; ſo that all the cavities of the body being filled and diſtended with water, as well as the ſkin, the patients laboured under an univerſal dropſy, accompanied with ſwelled, putrified gums, a ſtiffneſs at the joints of the knees, livid ſtains, and ſcorbutic ſpots.

"The patients had ſeldom any fever in the firſt ſtage of the diſeaſe; but when the ſwelling had once reached to the belly, by its hindering the proper action of the organs of reſpiration, a difficulty of breathing, and a ſmart fever came on, eſpecially towards the evening. And when the breaſt became alſo affected, which happened ſoon after the ſwelling had reached the belly, the fever, and difficulty of breathing, were both greatly increaſed. At this time, the patients could by no means lie on their backs; this poſture of the body expoſing them to the moſt imminent danger of being ſuffocated.

"An obſtruction of the perſpiration, and a difficulty of making urine, occurred almoſt always at the commencement of the diſeaſe, and were increaſed as it advanced to its height.

"The parts of generation were in almoſt every patient diſtended with water to a vaſt and enormous ſize. I frequently, by *tapping*, emptied them of three pints or two quarts of water. This ope-

ration gave immediate eaſe, though the relief was but of ſhort duration; for the diſeaſe proceeding from cauſes (afterwards to be mentioned), which continued daily to inforce it, could not be cured, and was with difficulty palliated.

"Some bore their affliction in the firſt ſtage with tolerable ſpirits, though their legs, thighs, and belly, were of an unwieldy ſize, of a white ſhining colour, and when preſſed with the finger, retained for a conſiderable time its impreſſion of an inch and a half in depth.

"Their appetite was at length impaired, their thirſt became violent, they complained of ſharp pains in the bones of their legs, and in their joints, as in the common ſcurvy, as alſo, of an utter inability to walk; an attempt to move four or five ſteps occaſioning a want of breath, as they expreſſed it, and a faintneſs.

"All medicines were here unavailing. In the firſt ſtages, gentle purges and diuretics ſomewhat relieved their diſtreſs; and as the belly filled, it became abſolutely neceſſary to adminiſter *jalep*, and ſuch like violent purges, at leaſt twice a week, to prevent the patient being ſuffocated by the water, and alſo diuretics in various forms; and we imagined *oxymel* of *ſquills* and *garlic* to be of ſome benefit.

"When the water had got into the breaſt, a ſhort

ſhort cough was a common ſymptom. Bliſters were at this time of ſervice; as likewiſe pretty deep ſcarifications of the legs and thighs, together with *ſetons* put into the belly. A mortification ſeldom or never (which was pretty remarkable) was the conſequence of any of theſe operations.

"But notwithſtanding our utmoſt efforts, the diſeaſe always gained ground. The patient, after its firſt attack, ſeldom ſurvived ſeven weeks; few lived longer, many expired in a ſhorter time. They all died of a ſuffocation from water, except thoſe from whom the water was conſtantly drained off, by the means beforementioned; and they, after languiſhing for ſome time, expired at length, when reduced almoſt to perfect ſkeletons, all the fluids of their body having been quite exhauſted.

"By this dreadful calamity, one-third nearly of our number was cut off in the ſpace of nine months; for, out of four hundred and twenty men in our ſhip, we buried one hundred and thirty before we arrived at *Madras*, when the ſurf of the ſea ran very high. However, upon landing our ſick, moſt of them were ſoon re-eſtabliſhed in health by the uſe of vegetables, lime-juice, and ſyrup of garlic.

"It was an unfortunate circumſtance for us, that there was little lime-juice in any of the ſhips of the ſquadron.

"The iſland of *Diego Reys*, from whence we had ſailed, afforded no limes, nor any vegetables, but a ſpecies of *wild purſlain*, which grew in a ſalt marſh.

"Every captain and ſurgeon, who had any lime-juice, experieneed great benefit from it, in this diſeaſe. One of the captains, who had a quantity of ſour beer, diſtributed it among the ſick, which was of infinite ſervice to them.

"The cauſe of this fatal calamity was principally *the ſultry heat of the climate*, and bad proviſions. *viz.* bread full of maggots, ſpoiled beef and pork, water full of vermin, and a very ſcanty allowance of that, and ſpoiled rice; which laſt, even in its beſt ſtate, affords only a very poor and watery nouriſhment."

The ſurgeon of the America, who tranſmitted this melancholy account from the *Eaſt Indies* to Dr. Lind, has very juſtly remarked, that *Rice* is by no means a wholeſome, corroborating food. Bontius*, in his Diſeaſes of the *Eaſt Indies*, recommends Rice, ſhould there be a ſcarcity of *Wheat*; and deſires, that it ſhould not be eaten hot; for experience, ſays he, evinces, that hot rice is not only hurtful to the ſtomach, but alſo to the brain and nerves. That by this groſs aliment, the optic

* James Bontius, Phyſician to the Dutch Settlements at Batavia, 1769 and 1629.

nerves

nerves are frequently ſo much affected, as to induce a total blindneſs.

The people, ſays our author, who ſail to Amboyna, Banda, and the Molucca iſlands, are often troubled with a weakneſs of ſight, and even a total blindneſs. Which, he ſays, is not perpetual, but often ceaſes upon change either of air or diet. The inhabitants impute it to eating of hot rice.

Hence, the people of *Java* and *Maldiva* expoſe their rice, after being boiled, to the cool air, or winnow it with a fan; and our ſailors, ſays he, are prohibited from eating hot rice*.

If we inquire farther into this matter, we ſhall find, that the rice in the huſk, called *paddy*, on which the fowl or poultry are fed on board ſhip, and ſometimes in England, where lots of damaged paddy are bought at the India Company's ſales, often grow blind; which has frequently fallen within our own obſervation.

We ſhall not pretend to determine what ſpecies of blindneſs this is; but the tranſlator of Bontius, from it being ſometimes a tranſitory blindneſs, and yielding to evacuations, rather thinks it a greater degree of the *Nyctalopia*, or night blindneſs, frequent in the torrid zone, and cauſed by bleeding, purging, and the root of wild valerian†.

* The Dutch Eaſt India Company's Sailors.

† Page 36 of this Treatiſe, *valerian* appears to be a ſtimulant antiſpaſmodic.

Dr.

Dr. Thompſon, in his eſſay on the ſcurvy*, after quoting Hippocrates, P. Æogineta, Celſus, Galen, Feſtus, and Pliny, obſerves; It appears difficult to reconcile theſe very contradictory deſcriptions of the *Nyctalopia*; and the only way in which it can be done, is, by concluding, he ſays, the diſeaſe to be an intermittent (which it certainly is), and that the periods of the acceſs were different, *viz.* in the patients from whence Hippocrates and Feſtus took the deſcription of the diſeaſes, the paroxyſms commenced in the morning, and continued all day; and in thoſe who came under the obſervation of P. Æogineta, Celſus, &c. the blindneſs came on in the evening, and continued all night.

This ingenious gentleman mentions two caſes, that came within his own obſervation; the one a marine in the laſt ſtage of the ſcurvy, who complained in the evening of uncommon anxiety, difficulty of reſpiration, giddineſs and nauſea, attended with pain and heavineſs over the eyes; he ſoon after complained of dimneſs of ſight, and as if clouds were paſſing before his eyes; which gradually increaſed, till he became totally blind, or nearly ſo, for he could not diſtinguiſh candle light from

* Eſſay on the Scurvy, by Frederick Thompſon, Surgeon, 1790.

total darkneſs; the pupils were conſiderably dilated.

Next morning, to his ſurpriſe, he found he could ſee tolerably well, although his ſight, he found, was ſtill rather imperfect, and continued ſo all the day; but in the evening, he again loſt his ſight; and this impaired ſtate of viſion, or rather periodical blindneſs, continued for a week, when he died.

The other was a quarter-maſter, upwards of fifty years of age, and had the ſcurvy to a conſiderable degree, but ſtill kept his watch regularly; his ſight failed him rather ſuddenly; one evening, when he was upon deck, after ſome exertions in aſſiſting to work the ſhip, and getting wet, he complained of giddineſs, head-ache, and oppreſſion about the precordia.

Next morning he could ſee as well as uſual, but in the evening became almoſt blind again; and this intermittent kind of complaint continued till we got to New York, where we arrived five or ſix days after this uncommon ſymptom appeared, and the man being ſent on ſhore, recovered*.

Both theſe men were bliſtered behind the ears and betwixt the ſhoulders; their bowels were kept open, and they had what cordials and antiſcorbutics could be procured for them; the deficiency of which on board, our author laments.

See page 329 of this Treatiſe.

WHEAT. The decided preference, that *Bontius* has given as above, to this ſuperior grain over *Rice*, is juſtified by the experience of time immemorial. Every vegetable and animal is an entire whole in the order of beings; but this whole is an admirable aſſemblage of a great many mixts, very heterogeneous, and of different orders. To ſeparate theſe from each other, and to diſcover the nature and properties of each, is the object of *Chemiſtry*.

Farina, or *Flour*, is a ſubſtance, which has much of the nature of gum, or mucilage, but which has evidently more taſte, is more ſuſceptible of fermentation, and of yielding nouriſhment.

This matter abounds in the vegetable kingdom, and is there diſtributed in different parts of certain vegetables. Some kinds of roots, ſuch as thoſe of briony potatoes, that from which caſſava is extracted, ſalep, and ſeveral others, contain a great deal of white fecula, which has the properties of farina.

But the largeſt quantity of this matter, ſo valuable, on account of its ſupplying the principal nouriſhment to mankind, and to many other animals, reſides in grains, which are therefore called farinaceous; ſuch as thoſe of wheat, rye, barley, oats, rice, and other ſimilar plants.

It is depoſited in theſe for the ſame purpoſe, as mucilage and ſweet oil are in the ſeeds called *Emul-*

ſive;

ſive; that is, to ſerve for the nouriſhment and growth of the *germ* of the plant, in the firſt period of its expanding. It is the nouriſhment ready prepared; and as it may be ſaid, already digeſted by the parent plant for the ſupport of the beings which it produces. It is the aliment of their earlieſt age, while they are yet too weak to extract directly from the earth and other elements, the materials which muſt afterwards transform by their organic action into their own ſubſtance, in the ſame manner as the emulſive milky matter of many other ſeeds. Among animals, that of the yolk of an egg, and laſtly, the milk of animals, are evidently deſtined to procure to the *embryos*, or young of the ſeveral beings, a nouriſhment already half aſſimilated, the digeſtion of which is eaſy, and proportionable to the weakneſs of their organs*.

Mr. *Baccari* in Italy; Mr. *Keſſel Meyer*, in *Germany*; Mr. *Rouelle*, in France, and Meſſrs. *D'Arcet*, *Beaumé*, *Malouin* and *Parmentier*, late Mr. ———, have been all ſtruck with the great quantity of gluten *vegeto-animal* matter of *wheat*, which the other farinaceous grain have but in a very ſmall degree.

† All the world agrees, that it is to the animal

* See page 284.

† Our ſtarch makers have long been in the habit of feeding and fattening hogs with this animal gluten of wheat.

nature

nature of this gluten, aſcertained by theſe gentlemen, and other chemiſts, that wheat-flour derives its ſuperiority. The quantity of it varies much in different wheat, and is in general a criterion of its goodneſs, and is from a fifth to a third, or even more. But its qualities are always the ſame.

The firſt and moſt abundant part is pure ſtarch, a white fecula inſoluble in cold, and ſoluble in hot water. Of the nature of a mucous ſubſtance, which, when diſſolved, forms a watery glue, or paſte. This matter is ſuſceptible of fermentation, eſpecially of the acid and mouldy kind. Yields, when analyzed, an acid ſpirit, and a heavy empyrheumatic oil.

The ſecond ſubſtance is the *gluten*, a ſingular matter; its colour is more grey, is very tenacious and elaſtic, capable of being extended to ten times its dimenſions by force, which, when withdrawn, it returns to its uſual ſize and figure. Although indiſſoluble in cold and hot water, and capable of adhering ſtrongly, as reſins do to all bodies that are not wet, which fits for cementing glaſs or porcelain, has not however any of the other properties of reſins, or concrete oily ſubſtances, ſeems to approach to the nature of gums, in the reſiſtence it makes to the action of ſpirit of wine, oil, ſaponaceous menſtruums and æther, as well as by the property it has to form a glue.

But

But it is not a gum, as appears from its inſolubility in water, and from the principles obtained from it by diſtillation, which are different from thoſe which gum yields. As thoſe principles are exactly the ſame as thoſe obtained by analyzing animal ſubſtances*; and as the effects of the fermentation, of which it is ſuſceptible, are analogous to thoſe which are produced by animal matters; it is to this kind of compounds, that we ought to refer this ſubſtance. Among all animal matter, cheeſe is that to which this glutinous ſubſtance is moſt ſimilar†.

Laſtly, the third ſubſtance, which is obſerved in flour, is mild, perfectly ſoluble in cold water, of the nature of ſaccarhine, extractive, mucous matters, and ſuſceptible of the ſpirituous fermentation. This *mucoſo-ſaccarhine* ſubſtance is found but in a ſmall quantity in wheat flour, and exiſts in much larger in barley, rye, and other grain.

There can be no doubt but that it is from the union and juſt proportion of theſe three conſtituent parts of wheat flour, that its beforementioned ſuperiority over all others conſiſts, for making bread that is light, agreeable, and ſalutary.

* With vitriolic acid, the gluten of wheat flour formed a vitriolic, and with marine acid, a true ſal ammoniac.

† Mr. ——— has made a ſubſtance indiſtinguiſhable from cheeſe with it.

Although

Although the amilious or ſtarchy part, as found by Mr. ———-, yields but an inferior bread, and the white ſtarch not ſo good a bread as the grey; yet it is an important thing to know, as ſtarch has a conſiderable advantage over flour, in being much more incorruptible; and particularly, as ſpoiled or damaged wheat makes good ſtarch, and fit for this purpoſe*.

When wheat flour is kneaded into dough, before it is baked, it is allowed to undergo a certain degree of *ſpirituoſo-acid* fermentation, from the addition of yeaſt or leaven†; then the paſte ſwells by the diſengagement of the volatile gas, which ariſes from the fermentation excited in the mas; the vicidity of which is diminiſhed by the inteſtine motion and conſequent diviſion of the particles. When the paſte arrives at this ſtate, it is baked, and becomes a good and wholeſome bread, eaſy of digeſtion, and aſſimilable with the fluids of the animal ſyſtem, and at the ſame time counteracts the bad effects of a ſalt diet.

* Starch may have this animal gluten in a great degree, ſo as to make a bread ſimilar to wheat flour. All animal glutens, and gelatinous matter, which may be brought to ſea in a portable or concrete ſtate, are applicable to this purpoſe, when diſſolved in the water of the dough; as experienced by Beaume and Rouel.

† Palm wine is an excellent ferment, without bitterneſs.

Theſe

Theſe properties, no doubt, render well fermented bread of wheat flour preferable to all others as wholeſome aliment, and an almoſt indiſpenſable article of food to incipients and convaleſcents of the ſcorbutic diatheſis*.

Starch, from its greater degree of incorruptibility, has its advantages in very long voyages. It is obſervable of it, that it does not make ſo binding and tough a dough as the wheat flour in ſubſtance; ſo much ſo, as to be with difficulty kneaded into loaves, from its proneneſs to ſplit and incoherence, notwithſtanding that yeaſt was added in conſiderable quantity. Otherwiſe, it is not materially different in taſte from ordinary bread, except in being more bitter, from the ſuperabundance of yeaſt employed in its fermentation.

In quality, it is neither ſo light nor ſpongy as common bread; on the contrary, it is more hard, dry, and difficult of maſtication, in which it approaches nearer to the common biſcuit. Theſe are faults naturally to be expected from the ſubſtraction of ſo eſſential a part as the animal gluten of the flour.

Wheat is undeniably foremoſt on the liſt of

* Thoſe qualities are derived from the native acid and volatile alkali of the vegetables. See n. 346, 250 to 260, &c. Preſent acid to theſe vegetables, and a neutral ſalt is obtained of the kind conſtantly formed by ſuch an acid and an alkali.

thoſe grains coming under the denomination of bread corn. The potatoes of the temperate, and the *Satyrion* of the torrid zone, ſeem the moſt preferable for food among the roots of plants. Thoſe of the yam and ſweet potatoe of the warmer climates bear a ſtrong ſimilitude to our own potatoe. The ſatyrion is a root of the Orchis kind, variouſly prepared in thoſe countries* under different names, according to the language of the preparers. The *ſalep*, &c. is one of them. The *ſago* is prepared from the pith or medullary part of a tree growing ſpontaneouſly in thoſe latitudes. A little time will develope the qualities of the *bread fruit trees*, one of the products of the newly diſcovered iſlands by the late Capt. Cook; which Capt. Blyth has been tranſporting in a ſtate of vegetation to our Weſt India colonies.

Meſſrs. Beaume and Rouel made an edible cheeſe with the animal gluten of wheat flour†. The caſeous parts of the *portable whey* (recommended page 284) combined with ſtarch, is a good ſuccedaneum for wheat flour in making bread with ſtarch. The butyraceous part of the milk ſwims

* The farina or *manioca* of the Portugueſe; the *caſſava* of the Spaniards, in their South American colonies; and the *tapioca* of Africa and the East Indies, are all the product of the ſame plant.

† Additions to Macquer's Chemiſtry.

at

at the top, and the caſeous remains undiſſolved in the extemporaneous whey made of the portable whey, and water, from which the one can be ſkimmed, and the other ſtrained off.

As flour may be preſſed or rammed into caſks that are water tight, ſo as to take not above a quarter of the room that biſcuit does; and that the new cabooſes, or fire places, are ſo conſtructed, that the ſame fire, that heats the copper and dreſſes the men's victuals, are provided with ovens, in which their bread can be commodiouſly baked without any additional expence of fuel; but, that it would be moſt adviſeable to ſupply all ſhips with flour, and yeaſt in a concrete or dry ſtate, for making their own bread at ſea. This is very much the practice with the French and other nations. The flour, thus impacted together in cloſe caſks, impervious to air and water, keeps longer than biſcuit in a ſtate of preſervation.

Various ſubſtances have been recommended for the preſerving water ſweet at ſea; among the beſt is lime, or the *vitriolic acid.* The former does beſt as a reſtorative, the latter as a preſervative. One of the beſt contrivances is Oſbridge's machine for ſweetening water at ſea; it conſiſts of a tin half cylinder, containing a number of cullenders of the ſame metal, into the uppermoſt of which the water is pumped out of the caſk, and in being

divided and expoſed to the air in its deſcent, is ſweetened. This water, afterwards paſſed through a filtering ſtone, is very good for every purpoſe. Water may be rendered completely ſweet by fermentation, by the fixed air extricated in that proceſs. This is eaſily effected by a ſmall addition of any ſaccarhine ſubſtance and a little yeaſt*.

Porter, as a preventative of the ſcurvy, is mentioned by Drs. Blane, Clark, Thompſon, &c. It becomes an object of conſideration in long voyages.

Where the neceſſary proviſions and ſtores in ſhips of war, and the freight and tonnage in Eaſt India, Guinea ſhips, South Whalers, &c. might be too much intrenched upon; *the extract of wort*, put up with a due admixture of *the extract of hops*, furniſhes a good ſubſtitute, and obviates thoſe objections.

Thus *portable porter* may be advantageouſly ſupplied to all deſcriptions of ſhipping deſtined to be long at ſea, in a commodious form, occupying ſo ſmall a ſpace, as to be unobjectionable on that account: theſe extracts of malt and hops, when prepared with a larger portion of water, will be found to make as good table beer as can be wiſhed for,

* See p. 244. Wood ſhavings, ſaw-duſt, chips, turpentine, ſpruce, &c. will, in an inferior degree, bring on a fermentation, with agitation, and a little yeaſt, beer, or palm-wine.

and

and to moſt palates much better than porter and water mixed are known to make.

However chimerical it may ſeem, I flatter myſelf, I am warranted (from what has fallen within my own obſervation) to ſay, that in the purſuit of means to arrive at a method of occaſionally correcting and purifying the corrupt atmoſphere of a ſhip in bad weather, and in the ſick births, when atmoſpherical ventilation could not be reſorted to, in bad weather; that ſome lucid flaſhes have iſſued from this obſcure, dark purſuit, that, in my opinion, throw a great light on the probable means of even being able to make *portable water*; water in a concrete ſtate.

Thus much I have ventured to ſay, that notwithſtanding, however chimerical ſome people may think the idea, I ſhall go ſtill farther; and as I value the ſucceſs of ſo deſirable an object much more than the ambition of being the firſt perſon that ſhall accompliſh it, I ſhall hint at the probable means; that by alluding to what is already known to ſome chemiſts and philoſophers, men of genius may engage themſelves in ſimilar purſuits.

It has been hinted at, in the introduction to this work, that although my medicines were not calculated to ſweeten and correct bad air, and render it fit for reſpiration, &c. page xxiii; that it was

by no means an uncompaſſible thing to procure a pure atmoſphere on board a ſhip, &c.

We know that water is an evaporable ſubſtance; as it is by combining the proceſſes of evaporation and condenſation, that we are enabled to diſtil it. But at the ſame time, we know it is not reducible to an extract, like *portable ſoup*, *milk*, or *wort*. But, happily, we know it is procurable from ſolid, and from aerial bodies. We have ſeen, in the *introduction*, ſome of the means enumerated, by which vital air, the moſt reſpirable of all airs, is producible; and we are there told of ſome airs, which, inflamed together, produce water; after which, can we withhold our aſſent to the idea of it being amply procured by theſe or other means?

The fluid, evaporated with ſo much pain and induſtry in the formation of all theſe extracts, portable ſoups, whey, malt, &c. muſt be replaced, before we can make uſe of them. Therefore, without plenty of water, all thoſe extracts would be of no uſe. Hence, if water could be ſhipped in a ſolid or concrete form alſo, or, what is the ſame thing, the materials for producing it, the horrors that the want of this indiſpenſable fluid excites might be obviated, in long voyages; and all thoſe preſervative and reſtorative extracts, ſo healthy, uſeful, and agreeable, be in no danger at any time of being rendered uſeleſs, for want of freſh water on board ſhips at ſea.

Great

Great as the progreſs is that has been made in the diſcovery of the component parts of the air of the atmoſphere, we are much better acquainted with the analyſis of the water of the ocean. Yet *diſtilling* ſeems the only proceſs employed to obtain freſh water from it; and that, by the application of a pending tube, or pipe, of copper, or tin, to the cover of the kettle, that the men's beef and pork are boiled in; and even this has been found good enough to boil their peaſe in.

Water has been procured from the ſea, tolerably ſweet, by *filtration*. In a ſandy ſoil, near the ſea ſhore, large caſks have been bored full of holes, and ſunk in the ſand, through which the ſea water has filtered perfectly ſweet and wholeſome, and drawn up from out of the caſk as out of a well. This expedient has been often reſorted to by mariners, in warm climates; in cold countries, freſh water is obtainable in any quantity, from the ſpontaneous freezing of ſea water, by the cold air of the atmoſphere.

Water can be obtained in conſiderable quantity by the *condenſation* of air, a proper ſyringe and condenſer, capable of throwing in or condenſing three or four or more atmoſpheres in the compaſs or ſpace of one, and the immediate application of cold, obtainable by applying wet cloaths to the outer ſurface of the condenſer, expoſed to a current of

air, to promote cold by the quick evaporation of the water of the wet cloaths; cloaths wet in ſea water will do. The condenſer ſhould be provided with two cocks: one to let off the condenſed air, exhauſted of its ſuperfluous moiſture; the other, to draw off the water, beſides the ſyringe-tube for charging it with freſh air. It is almoſt needleſs to obſerve, that moiſt weather is moſt favourable to this manner of obtaining water by condenſation of the air of the atmoſphere, and ſubſequent cold, procured by evaporation, or the application of wet cloaths, as before mentioned.

Water is obtainable from atmoſpheric air by *attraction*; that is, by preſenting ſubſtances capable of attracting moiſture or water in large ſurfaces, and in proper veſſels, to the air.

Water is abſorbed from the atmoſphere in conſiderable quantities, by the human ſyſtem. Dr. Blane has ſomewhere recommended to ſeamen obliged to leave their ſhip, and take to their boat for the preſervation of their lives, in want of water, to apply ſea water to the ſurface of their bodies; in ſome degree, to compenſate, by abſorption, for the deficiency or want of this indiſpenſable article of life to drink*.

* The doctor is of opinion, the ſaline part will not be abſorbed, and probably he is right; it is well known that it enters the abſorbents of ſome plants.

* Dr.

* Dr. Home found that the abſorption of water by patients, in bad and in incurable diabetes, was conſiderable; and that it frequently overbalanced perſpiration†. The intelligent reader, who may or may not derive information from the foregoing hints, will form his concluſions accordingly. We prefer giving the opinions of others, on eſtabliſhed facts, to reaſoning on them, in a work like this. With reſpect to what is advanced here, on our own authority, we ſhall not fail to obtain credit with the generality of our readers, in aſſuring them, our notions of water, in a concrete ſtate, are too crude and undigeſted, to think of laying them before the publick, until the further experiments which we are making eſtabliſh the fact.

Flummery, made from oatmeal ſteeped in water, and ſhifted every twelve hours or oftener, according to the exiſting heat of the weather, until properly ſoured, is an agreeable antiſcorbutic ſubſtitute for burgoo at ſea; againſt which we know of no objection, but the waſte of water; and this may be obviated by letting the oatmeal ſtand with the firſt or ſecond water, and boiling them together.

It is a well known fact, that our want of ſucceſs in the Eaſt Indies was intirely owing to the Scurvy on board the fleet under the command of Sir Edward Hughes. To ſuch exceſs did this

* See what we have ſaid on the quantity of perſpiration, p. 247.

† Clinical experiments, under the article, Diabetes.

debi-

debilitating diſeaſe rage, that they frequently ſuffered for want of a ſufficient number of men in the actions they had with the French; particularly in the laſt, where ſo many were ill of the ſcurvy, that there was ſcarcely a ſufficient number to man the guns in any ſhip in the fleet.

The journals of the Spaniſh navigators abound with ſhocking narratives of the ravages of this hideous diſeaſe in thoſe ſeas; particularly in their paſſage from China to New Spain.

To ſimilar facts, the voyages of the Dutch bear evidence; theſe people, who at one time were the principal carriers of Europe, and have long had large poſſeſſions and great intercourſe with thoſe parts, are but too well acquainted with the virulent effects of this loathſome diſeaſe.

The journals, and authentick hiſtories of voyages of theſe, and all the maritime nations in thoſe ſeas, inform us, that heat and moiſture, the parents of corruption, and diſſolvents of the animal fluids, which conſtantly induce fevers and dyſenteries, are, remotely and proximately, the prediſpoſing cauſes of Scurvy, and an indiſputable teſtimony of the fact, that this diſeaſe is not the endemic of northern latitudes, or cold countries excluſively.

PRICKLY

PRICKLY HEAT.

This is a cutaneous eruption, uſually appearing as we approach the equator. Bontius calls it the endemic of Amboyna, and the Molucca Iſlands, where it is generally much more virulent than on board ſhips.

He attributes it to the peculiar nature of the ſoil, and exhalations of the ſea, joined to a viſcid groſs diet of ſago and fiſh.

It conſiſts in a breaking out in various parts of the body, &c. of pimples, and red ſpots, exciting a prickly and intolerable itching, interſperſed with blotches and eminences, ſometimes not unlike thoſe weals raiſed by the ſting of nettles.

In very virulent caſes, increaſed by ſcratching, they ſometimes ulcerate, and diſcharge a viſcid acrid matter, that corrodes the ſurface to ſome depth, forming ulcers with inverted lips.

This is moſt frequent in bad habits of body. The milder ſort is little other than a ſmall red raſh, and if unaccompanied with feveriſh ſymptoms, is accounted ſalutary; and although attended with a ſenſation of heat and pricking, becomes a bearable diſorder in habits not very irritable.

Some

Some are incommoded with it, only when much expoſed to the heat of the ſun, or on making great muſcular exertions; others are troubled with it all the year round. In thoſe, who have this complaint in a moderate degree, it ſcarcely appears to the eye to be raiſed above the ſurface of the ſkin, though it gives a ſlight roughneſs to the feel.

It probably depends on a twofold cauſe; the irritating action of the heat upon the ſkin, and the concentrated ſtate of the ſalts of the perſpirable matter. The rays of the ſun in hot climates are capable of raiſing bliſters on the ſkin; the perſpiration always being profuſe, the thinner parts ſoon fly off, and the remainder becomes more loaded with animal ſalts, and is of courſe more irritating.

The *prickly heat*, when ſevere, is mitigated by a cool and ſpare diet, and gentile laxatives. When not, no other inconvenience ariſes from it, than the prickly itching; and in a ſhort time, either diſappears, or ceaſes to give much trouble.

This diſeaſe, properly named the *prickly heat* by the Engliſh, generally ſeizes on ſtrangers ſoon after their arrival in hot climates. The beſt method of cure, is to obſerve temperance, uſe moderate exerciſe, and encourage free perſpiration, avoiding ſudden tranſitions to cool air, night dews, and damp places.

COUP

COUP DE SOLEIL;

Or, Stroke of the Sun,

Is a diſeaſe, which, from its extreme virulence and rapidity, too generally precludes all relief. Mariners, marines, and ſoldiers on foreign ſervice, are more immediately expoſed to this fatal ſtroke than other travellers.

It ariſes from the action of the extreme heat of the ſun on the brain in hot climates; to which the men are either expoſed on deck, in their duty at mid-day, or when fatigued by labour, or marching on ſhore expoſed to the ſun's heat.

The uſual ſymptoms are, violent head-ache and thirſt; ſometimes it is attended with a difficult breathing; in ſome it is proceeded by a red bloated face; at one time gloſſy; at another, ſwelled ſparkling eyes, a giddineſs, and other *apoplectic* ſymptoms, with ſuch other phenomena, as bring on a total abolition of the animal functions; firſt, thoſe of ſenſe and voluntary motion, and laſtly, of the heart and lungs, &c.

A ſpon-

A ſpontaneous diſcharge by ſtool and urine, accompanied with a bilious vomiting, though uſually taken for ſymptoms of immediate death, frequently afford relief, and give the phyſician time to exert his beſt endeavours for the life of the patient.

The rarefaction of the blood from extreme heat, and the difficulty it muſt meet in this ſtate of expanſion, in its circulating through the ſinuſes in the Encephalon, indicate blood-lettings, and the other evacuations. The accumulated heat of the body, external and internal application of cold. Acids, when at hand, may perhaps beſt anſwer this intention; whether they are applied externally, or thrown in in the form of draughts and cliſters.

Stimulating ſternutatories and cataplaſms follow*.

If the patient becomes breathleſs under the ſtroke, the means employed to reſtore animation in perſons drowned, ſhould be reſorted to; ſubſtituting the application of acid for ſalt, and inflating the lungs.

After what has been ſaid, it may be thought unneceſſary to add, that the preſervation of life

* To procure a ſudden and effectual ſtimulus of all the organs of ſecretion, or evacuation, a quick repetition of our medicines, in an increaſed doſe, is the moſt certain effectual method. See page xxx.

depends

depends upon every exertion being inſtantaneous. From a horizontal poſture, change the patient to a ſitting, or partly erect one; taking due care that the head does not become pending. Thus placed in the ſhade, with the free admiſſion of cool air, ſhould all relief be adminiſtered, and perſevered in.

This diſeaſe, ſo alarming in appearance, ſo rapid in its progreſs, and fatal in its effects, ſhould not diſcourage the young practitioner from doing every thing that can be done, with all reaſonable hope of ſucceſs; and which will generally attend his labours, where none of the veſſels of the brain have been ruptured, and relief has been immediatly adminiſtered.

OMITTED.

The Ætherial Anodyne Mixture,

For curing the *Hiccough*, mentioned page 122.

Take of cinnamon, or peppermint water j ℥.
Two tea ſpoons full of *æther*.
Laudanum xx drops.
To the laudanum and cinnamon water add the *æther*, and immediately give it to the patient. If it does not preſently remove the hiccough, it may be repeated at intervals of half an hour, or an hour.

When

When this very troubleſome ſymptom requires, it may be repeated at ſhorter intervals, reducing the laudanum, and increaſing the *æther*, each one half.

Antiſcorbutic Ointment; mentioned page 237.

Take ointment of hogs-lard j℥.
White mercury precipitate j℈.
Cantharides in fine powder j℈.
Antiſcorbutic powder, No. 1, j℈.
Mix and make into an ointment.

This is a moſt ſafe, and very elegant mercurial ointment, and may be ſucceſsfully employed in the moſt obſtinate cutaneous foulneſs, blotches, and pimples, not only on the body and limbs, but on the face alſo. Lightly touching the parts affected every ſecond or third night going to bed.

FINIS.

AN EXPLANATORY INDEX OF DISEASES.

"Though index'd learning turns no ſtudent pale,
"It holds the eel of ſcience by the tail." POPE.

A.

ACIDS, their qualities, xli. 340
to be found in the veſſels of every plant, ib. 275
probably in the ſtomach of every animal, ib. 275
Mineral acids are not to be uſed with antifebrile, or antiſcorbutic powders, 32
Acids, their effects on the *bile*, 183. 188
when they ſhould not be given but in conjunction with ardent ſpirits, 66
in the dry belly-ache, the only acid that can be taken with ſafety, 66
antiſoporific, 841. 415
like aſtringents counteract the narcotic effects of opium, inſtanced in coffee, 416
lemon-juice and cryſtals of tartar correct bitter ſaline purgatives, 420, 421
Acid, a proof of, generated in the ſtomach, 436
ſimilar in ſome of their effects to the antifebrile powders, 2
the vitriolic in the malaene, 180
ſimilar in their effects to the application of cold, 188
ſolicited by the appetite, 188
cordially received by the ſtomach in hot climates, 189
abundant in theſe countries, 183
general effects of, 188, 189
when applied to the organ of taſte, excite ſaliva, 190
to the organ of ſmelling, recall from deliquiums, 190
when introduced into the ſtomach, 190, 192
remove glandular obſtructions, 190
reſolve tumours, 191
correct the ſaliva, when viciated, 191

Acids, injure the teeth, 192
excite a ſenſe of hunger, 192
ſtimulate to digeſtion, 193
ſtrengthen the tone of the ſtomach, 193
their operation in the inteſtines more limited, meeting a corrector in the bile, 194
their uſe in a paralyſis of the bowels, 194
ſtimulate the bronchial and renal glands, 195
check putrefaction, 191, 195, 196
their efficacy in the ſcurvy, 196, 233, 348, *et ſeq. paſſim.*
promote a good and wholeſome chyle, 196
their influence on the primary fluid, the blood, that vehicle of nutrition, ſecretion, and excretion, 191, 195, 196, 204
their tonic power in ſprains, bruiſes, tumours, 195
antiſeptic power, 188
aſtringent power, 188
relieve thirſt, languor and faintneſs, 188
diaphoretic, 193
reſolve tumours and inveterate obſtructions, 195, 193, 197, 199. in a diarrhœa, 207
their uſe in the variety of diſorders connected with fever, 196, 197, to 207
in inflammatory, 197, 199
in obſtructions induced by viſcidity, 197
in ſpaſms induced by acrimony, 197
Acids, as a ſedative, 197, 198
how they aſſiſt in effecting a cure in an inflammatory fever, 1ſt, as a ſedative, 200
2d, by cooling, 199
3d, by correcting putrefaction, and the bilious fever, 201
in a putrid malignant fever, 200, 201, 202
recommended in a greater quantity than uſual, 201
inconceivable how much the ſtomach will bear in this and all putrid diſeaſes, 201
ſhould be employed internally and externally, 202
rational of the remote cauſes of fever inducing a *hectic*, 202, 203, and 178
not a continued fever, 203
recurs at periods correſponding to the acceſſion of new matter from the ulcers, 203
ulcers internal, or external, capable of producing this diſeaſe, 204
ſtimulus of food, 203, 226, 227
excites that temporary fever every one experiences upon a full meal, 203
ſubſides on complete digeſtion, 204
the *lungs* are its peculiar ſubject, 204
their tender ſubſtance, and the number of accidents they are expoſed to from the variety of their functions, 204
ſuffer from the circulation of the blood through them, 204

Acids. Every kind of fever affects them, 204, 205
the ſame reaſoning not ſo concluſive here as in fevers, with reſpect to acids, 205
being rather contra-indicated, 205
the more relaxing deobſtruents ſeem indicated here, 204, 206
not to be too free with the uſe of acids, until the hectic is aſcertained, 206
all fevers that attend diſeaſes of the lungs, not hectic, 206
a true hectic is a fever attending upon an abſorption of noxious matter, 207
what acids we moſt prefer in a diarrhœa, 207
acids in chronic diſeaſes, 207, 208
are theſe which immediately affect the organs of digeſtion, the ſtomach, and alimentary canal, 208
diveſted of their mucilage, 209
depuration of lemon juice, 210
aſtringent principle, 211
acid of galls, 211, 212, 213, 278
converted to the acetous acid, 113
their ſalutary and extenſive uſe 275, and their univerſality, 275, 276
The mineral acids not to be exhibited with the antifebrile nor antiſcorbutic medicines, 32
to be carefully attended to in the ſcurvy, 273
Acids, their efficacy in counteracting exceſſes in opium, 341, 415, 416
African fever, 27, 36, 55. *See fever*
Atrabilioſa fever. *See fever*
Alkalies volatile, ſimilar in ſome of their effects to the antifebrile powders, 2
their ſalutary effect in agues, 145
Fixed, not to be exhibited with the antifebrile or antiſcorbutic powders, 32
Atrophy, 255
Æthiops mineral, 317
Animals, ſome degrees of their exiſtence, little above vegetable life, 6
effects of exceſſive cold, ib.
torpid in winter, ib.
when they take in no aliment ib.
when they have no excretion, ib.
when their fluids do not ſuffer the ordinary degeneracy, ib.
their internal heat much the ſame in all climates, 93, ib.
or are fundamentally of the ſame temperature, with reſpect to their fluids, in all conditions of the atmoſphere, 9, 93
their ſeptic degeneracy, promoted by paſſion, ib.
by convulſions, 9
by exceſſive muſcular motion, ib.
by too ſtimulating a diet, 7
and without a juſt proportion of vegetables, 7

Animals. By *indigeſtion*, and want of *aſſimulation*. *See theſe articles*
by corrupt unreſpirable air, xxii.
Anxiety in fevers, what, accounted for, 18
a ſenſe of coldneſs and ſhivering ſucceeded by heat, accounted for, 17
arcanas, 354
Amputations and wounds, 80, to 98 and 101
effects of ſleeping in the open air, 95
Antimony ſimilar in ſome of its effects to the antifebrile powders, 2, 148, 149, 157, 158
its inconvenience obviated by exhibiting the antifebrile powders with, or without it, 31, 32
their emetic, cathartic, diaphoretic, evacuant qualities, 149, 157, 158, 240
extreme activity of regulus of antimony, 157
corrected by ſulphur, 158
apoplexy, ſymptoms of, 491
Arſenic, a modern remedy in the ague, 156
in cancerous complaints, 156
ague drop, 156
the taſteleſs ague drop, 156
ſolution of arſenic, 156
ſal arſenici, 157
the genuine arſenical neutral ſalt, 157
Ague-cake, 178
Ague, ſee intermitting fever
Ague, applications external in the ague, 155
Aſſimulation, ſee digeſtion.
Aſtringent principle, 278, *and under acids, which ſee.*
Advantage of keeping biſcuits in tight caſks, 351
Animal food, 253, 261
compound animal food, 255 to 258
ſimple animal food, 254
Aſafœtida ſubſtituted for opium, 411, ſee aſafœtida
Advantage of freſh vegetables and farinaceous diet with ſalt meat at ſea inſtanced, 390, 391

Antiſpaſmodics.

Scale of antiſpaſmodics, xxxv. 83, 88
ſpaſm, what, 25, pain of lulled, 90
ſometimes attended with pain, and others not, 25
in dyſentery, 131
in cholera morbus, ib. 129
in diarrhœa, ib.
one caſe accompanied with a pleaſing ſenſation, 97
their different names, *ophiſthotonus, emphroſthotonus, triſtriſmus, tonicus*, 81, *tetanus*, 80, tonic, clinic; ſpaſmus gulæ, &c. 103
moſt frequent in hot countries, 81
ſimilarity of treatment, 81, 88
opium, its various ſucceſs, 81, 82

Antiſpaſmodics. The amazing extent to which it has been given, 82, 91—aſſiſted by a warm bath, 89, 90, 107, 91, 92
the antifebrile powders moſt to be depended on, 83
mercury, its ſucceſs, 83, 93, 92, 93
aſſiſted by the warm bath, 84, 107, 105—and with *opium*, 84, 85, 86, 107—and with muſk, 87
Mode of exhibiting the antifebrile powders, 84, 85, 86, 87, 98, 106, 107, 108, 112, aſſiſted with *camphire*, 84, 85, 86, 87, 106, 112, 92, aſſiſted with *bark*, 84, 86, 91, 92, 93
by antifebrile powders mixed with the dreſſings, 98
with oil of hartſhorn, 85, 87
with expreſſed oil, 82, 85, 87, 90
the ſpaſm allayed by applying oil to the temples, 89, 90
obviated by mixing laudanum with the dreſſings, 92
with *muſk*, 87, 108
with *cantharides*, 106, 108, 93
with *aſafætida*, 86, 87
with an oil bath, 89—and with oil, 85, 90, 82
with a bath of milk and water, 89
with *wine*, 93
with *antimony*, 91
amputation unſucceſsful, 93
remarks, 93, 94, 95, 97, 98, 100, 103
diaphoretics, 95
Antiſpaſmodics, with ſmoak of tobacco, 91
with fumes of cinnabar, 105
with a cold bath, 96, 109
with a ſand bath, 111
with the eſſential oil of peppermint, 130—actuated with *cantharides*, 55
with effuſion of cold water, 83
with turpentine oil, 117, 155
oil of hartſhorn, 26, 85, 86, 106, 108, 117
camphorated oil, 85, 87
aſaſœtida, 86, 87, 102, 411.
oil of mint, 112
See locked jaw and tetanus.
oil of the Indian plant of morgooſe, 111
of olive, 89
of palm, 95
caſes, 83, to 101, 404, 414

Antifebrile Powders, 2.

Correct the qualities, moderate the redundance, and ſupply the deficiencies of the *bile*, 2
they lower the febrile impetus, 16
expel the irritating fomes, ib.
keep up the *vis vitæ*, ib.
relieve in ſpaſmodic ſtricture of the capillary veſſels, exciting *coldneſs* and *ſhivering* ſucceeded by *heat*, 18
in *anxiety*, whether proceeding from an inflammatory or ſpaſmodic cauſe, or any thing that can impede a free circulation through the lungs, or prevent the e-

greſs of the blood from the ventricles of the heart, ib.
Antifebrile powders, in *diarrhœa*, whether proceeding from critical or ſymptomatic cauſes, 19
in *ſymptomatic ſweats* ariſing in the beginning of a fever, from too increaſed and rapid a circulation, or theſe of the colliquative kind, happening at the latter end of a low fever, 21
for the immediate relief of *comatoſe* affections, 23
for *delirium*, in fevers, 24
in convulſive twitching of the tendons, the almoſt conſtant attendant in the laſt ſtage of the fever, 25
in *ſpaſms*, with or without pain, ib. 26 and 27
antifebrile powders, ſuch is their ſedative properties, they will but ſeldom want the addition of an opiate, 32
do not admit of the addition of alkalies, or the mineral acids, ib.
ſalutary effects of exhibiting theſe powders at an early period of the fever, 33
their efficacy in thoſe fevers, &c. 52, 65, 79, 88
In ſpaſmodic affections, 83, 84, 85, 86, 87, 95, 98, 106 107, 108, 112, 115, 116, 117
combined with *mercury*, 85, 86, 93, 107
Antifebrile powders, with *opium*, 83, 86, 87, 98, 106, 107 108
with *camphire*, 84, 85, 86, 87, 92, 106, 112
with *bark*, 84, 86, 91, 92, 93
with *muſk*, 87, 108
wit *cantharides*, 93, 106, 108
with aſafœtida, 87, 112
with oil of hartſhorn, 85, 87
in amputations, 83, 84, 85, 86, 87, 98
in the *rabies canina*, 106, 107, 108
in the *barbiers*, 111, 112
in the phrenitis, 115, 116
in the *dyſentery*, 125
counteract the real or ſuppoſed bad effects of opium, 125
without danger of penning up the morbid acrimony, 126
convenient forms of exhibiting them, 126, 127, 128, 129
never exaſperate, but always mitigate morbid irritability, 126
in the *cholera morbus*, xxviii. 128, 129, 130, 131, 132
in the diarrhœa, 135
in the ague, or intermitting fever, 140, 162 to 167
dropſy, 169, 170
they obviate the inconvenience of antimonials, 31
inſtances but rarely occur of their wanting the addition of an opiate in fevers, 32
the advantage of exhibiting them at an early period of the fever, 33

Anti-

Antifebrile powders, how to be managed when the patient is in a doubtful ſtate of recovery, 35
their uſe in cleanſing the ſtomach and inteſtines, 30, 31
how adminiſtered on a remiſſion, 34
when the reſpiration is labourred, &c. 35
their uſe, or beneficial effects in fevers, 52
want not evacuations previous to their exhibition, 54
adminiſtered in *the dry belly-ache*, 63, 64
for prevention in the *Guinea worm*, 79
in the *locked jaw*, 80
antifebrile powders as ſuperior antiſpaſmodics, 82
in the *jaundice*, 172, 173, 236
inflammation of the liver, 175, 176
in the athrophy, 235
in ſcrophulous humours, ib.
in the king's evil, ib.
in the leproſy of the Arabians, 236
in the leproſy of the Greeks, 237
in the leproſy of theſe kingdoms, ib.
in the ſtruma, 238
in the ſcald head, 238
in the ſcurvy, 238
in the yaws, 373
in the cacabay, 374
to the dirt-eaters, 377

Antiſcorbutic Powders.

In the Scurvy, 243, 267
to correct the laxity of the ſolids, and promote the natural ſecretions, 280
lozenges to correct the laxity of the gums, 280, 281
portable whey as an antiſcorbutic, 284
aſtringent gargle, 287
acid gargle, 288
warm bath, friction, oiling and anointing, with occaſional fomentation of the parts, 288
ſcorbutic ulcers, whom they moſt affect, 290, 295
the garlic pills, 299
the ſweating powder, 300
ſee the index to compoſitions.
the ſweating tincture, 301
the bitter tincture, 303
antiſcorbutic ſolution, 304
wine, ib.
powder, 302
their efficacy, 305, and 303
antihydropic mixture, 306
its operation, 306, 307
warm liquids, 308
their efficacy, 308, 309
fulneſs of the vaſcular ſyſtem recommended, 309, 311
remarks on the want of a ſufficiency of freſh water, 310
the waſte of the animal fluids great in warm latitudes, 311
the cathartic powder, 313
treatment of ulcers, 323

Antiſcorbutic powders, 366
the beneficial qualities of medicines with reſpect to the *bile* and *ſcurvy*, 275, 302 to 308, 349, 350, 353, 377
Apoplexy, ſee *coup de ſoleil*
Ague, 137
cauſes, 14
ſymptoms, 137
cure, 138, 167
ſee fever intermittent.
Antiphlogiſtons, 456
Atmoſphere, *ſee ſcurvy*
Antifebrile and antiſcorbutic powders, the beſt method of obtaining the greateſt benefit from them in the ſcurvy, 307 to 312
their uſe in ſcorbutic ulcers, 321 to 329
Aſthma, xxxii, 204, 425
☞ Alterations in the text, p. 215, l. 28—289, l. 14 and 15—300, l. 26—321, l. 13, *for which ſee errata, or errors, &c.*
additional notes at the bottom of page xxxvi. 248, 363, 374, 378, 417—286, l. 2
Author, ſee his apology, 437 to, 439
Air, bad, xxi.
on board ſhips, xxii.
ſee this article under ſcurvy
Action of our medicines.
on the ſtomach, &c. xxvi.
by perſpiration, xxvii.
by urine, ib.
Action of our medicines, &c. as a ſoporific, ib.
as an anodyne, ib.
anti-inflammatory, ib.
reſtorative, ib.
ſtimulant, ib.
antiſeptic, ib.
antiſcorbutic, ib.
antifebrile, *ſee fever*
on the inteſtines, xxv. xxvi.
on the ſkin, xxviii.
on the renal glands, ib.
on the ſalivial glands, xxxi.
expel the ſcorbutic virus, ib.
ſee our medicines, M.
Antiſpaſmodics, xxxii.
not all to be equally depended on xxxv.
the weakeſt, ib.
the ſecond claſs, xxxvi.
the third claſs, ib.
ſtimulant or inflammatory, ib.
electricity, mercury, valerian, *aſaſœtida*, *Peruvian bark*, *opium*, *&c.* ib.
ſedative, or anti-inflammatory, bleeding, epiſpaſtics, muſk, camphire, caſtor, æther, the floria cardæminis, the folia aurantiorum, the cuprum, ammoniacle, the flowers of zinc, &c. xxxvii.
æther, a ſedative inti-inflammatory antiſpaſmodic, ib.
recommended in the palſy or barbiers, 112

B.

BALSAM antiſpaſmodic, 127
Bad air, xxi.
on board ſhips, xxii.
ſomes of corruption in, ib.
counteracted, xxiii.
ſee air and atmoſphere under ſcurvy
Bilious fever, 12, 27, 51, 403, *ſee fever*
Barley, 309
Boluſes, 21, 24, 63, 141, 169, 170, 173, 243, 280, 366, 368
Belly, griping and ſwelling of, at the beginning of a fever, if not relieved in proportion to the ſtools, a ſymptom of mortification, 29
Bruiſes, 383
Bite of a mad dog, 101
Black vomit, 48, 179
treatment, 179
Bitters ſtrengthen the digeſtive organs, 264, 265
Belly-ache, dry, 62 to 73
Bencoolen, a ſickly climate, 74
Bengal fever, 27, 401, 464, *ſee fever*
next to Bencoolen, the moſt ſickly climate of the Engliſh ſettlements in the Eaſt Indies, 74
Bombay, the air is more wholeſome, &c. 75
Black *vomit*, 179
ſtools, 179
Bath of oil, 89
of ſea water, 244, 413
Bath, hot or warm, 90, 402, 388, 237, 283, 288, 317, 400
cold, 96, 83, 413
of milk and water, 89
of ſand, or earth, 111

Bile.

Bile, xxiii. 2.
the regulating ſtandard of health, 2
its uſe in the preſervation of health, 3
its univerſality throughout the the animal creation, 3
its energy continues the exiſtence of animals, 3
a natural and univerſal medicine, 3
when depraved in quality, when deficient in quantity, when altered in its craſis, and when redundant in quantity, the cauſe or effect of diſeaſe, 3, 4
its uſes, ib.
its importance in the animal œconomy, ib. 4
its redundance the cauſe or effect of many diſeaſes, ib.
as the remittent or intermittent fever, cholera morbus, and dyſentery, ib.
its too great evacuation robs the chyle of its main inſtrument of digeſtion, 5
meaning of a bilious temperament, ib.
temperament bilious, the effect of a hot climate, 5, 7

Bile, its irritability diminiſhed by cold, and increaſed by heat, 5, 7
ſource of ſenſibility, 5
partially ſtamps the national character, 5, 6
a bilious temperament is that more prone to the paſſions, 5
redundant excretions of, their connection with the alimentary canal, 10
more irritable, ib.
to exceſſive ſecretion of bile, ib.
a copious diſcharge of, denominates the fever bilious, 12
when not evacuated in time, gives to fever a continual and malignant form, 37
where it is moſt freely and copiouſly ſecreted, no fever exiſts, as in *cholera morbus*, 53
in the worſt ſort of fevers there is no preternatural ſecretion of it, but on the contrary, a defect of it, 53
an uncommon quantity of it ſecreted in moſt fevers of hot climates, in which part of the cure conſiſts, 53
aſſiſts digeſtion, 182, 183, 275
its decompoſition in the inteſtines by the acids it meets there, 183
the operation of acids on, 188
to be carefully attended to in the ſcurvy, 273
retarded and diminiſhed in the ſcurvy, 297
biliari calculi, 172
viſcid bile, 173, 436, *ſee jaundice and liver complaints*
Bile, computed quantity ſecreted at one meal, 275
the moſt natural method of carrying it off, 417
morbidly increaſed or dimiſhed, a ſymptom of a diſeaſed liver, 422, *ſee liver*
what ſtate of ſecretion of the bowels is termed *the bile* in India, 425
computed quantity ſeparated in a healthy ſtate, 274
marks of redundance, 435
when the bowels are inflamed, the evacuation of bile upwards is preferable to downwards, 435
remarks on its colour and conſiſtence, 435, 436
on the quantity ſecreted, 435
by vomit, may depend on two cauſes, 437
that may have no connection with fever, 437
Balance, 454, 455
Bones of *ſcorbutics* that have been formerly broken diſunite again in inveterate *ſcurvy*, 182, 295
reunite when the diſeaſe is cured, 295
Beverage of the poorer peaſants in ſuch parts of the ſouthern parts of Europe, where ſmall wines are ſcarce, 308
Beer, a preventative of diſeaſes, 376
portable, 482
porter, 344, 33
tartar, 344
ſpruce, 309

Beer, wort, 346, 351, 352
Bark, *see Peruvian*
elm, 155
mezereon, 177
oak, ib. and 287
mahogany, 159
cort. de Pala, 159
Tellicherry, 159
willow, 160
Brometer, 454
Breezes, the land and ſea breezes, 37, 443
their operation on the diſeaſed, &c. 37, 443
their comparative qualities, 433 to 449
rational, of, 443 to 449

Bliſters.

Sedative, anti-inflammatory and antiſpaſmodic, xxxiii.
their importance in ſome fevers, 44
their uſe, 46
not in the typhus, 46
tropical, their effects, 47, 330
in the head-ache, 46
applied to the temples, 46
rational of their operations, 46 47
to prevent a ſtranguary following their application, 45, 46
intereſting obſervations on, 44 to 47, 469
their efficacy, 66, 67. 469
recommended, 367, 419
prevent inflammation and mortification in dyſenteries, 419
applied to the ſtomach, remove the irritability of that organ, 65, *et ſeq. paſſim*
Bliſters, when uſeful in the *ſcurvy*, 324, 316
applied behind the ears in the *nyctalopia*, 330
to the temples in the head-ache, 46
to the belly in the *dyſentery*, 419
their diſcharge in putreſcent diſeaſes, 463
in inflammation of the liver, 433

Bleeding.

Anti-inflammatory and antiſpaſmodic, xxxvi.
caution againſt in hot climates, 30, 38, 39, 75, *et ſeq. paſſim*
Blood, recently drawn, manifeſts no certain indications for our guidance in the ſcurvy, 230, 231
in ſtools, whence it is derived, 119
though uſually an alarming ſymptom, leaſt to be dreaded in dyſentery, 120
the cauſe of its generating faſter than degenerating in perſons in health, 8
blood, the vehicle of nutrition, ſecretion and excretion, 195
all ſecretions depend on its free circulation, 297
its obſtruction excites *fear* and *ſorrow*, 296
and induces apoplexy, 491, 492
rarefaction induces *coup de ſoleil*, and apoplexy, 492
its circulation in herbaceous, grani-

granivorous and carniverous animals, 255
Barbiers, 110,
cauſe, 110
ſymptom, 110, 111
cure, 111, 112, 113
Bad effects of ſleeping in the open air, 110
Bread, 478
of wheat flour preferable to all others, 479
of ſtarch, its advantages, 479
bread of wheat flour well fermented, counteracts the influences of a ſalt diet at ſea, 478, *ſee wheat*
rational of making bread, 478
bread-fruit tree, 480
advantage of keeping biſcuit in tight caſks, 351

C.

CAMPHIRE ſimilar in ſome of its effects to the antifebrile powders, 152
its uſe in bliſters, 45
in ſpaſms, 84, 85, 86, 87, 92, 106, 111, 112, 410, 412, 414
aſſiſted with bark, 84, 86, 91, 112, 113
with opium, 84, 85, 86, 87, 106, 112
with aſafœtida, 112, 86, 87, 117, 411
with muſk, 87, 108
with turpentine, 117
a ſedative anti-inflammatory antiſpaſmodic, xxxii.

Cauſes of Fever.

A putrulent fomes, 14
Cauſes of Fevers, a putreſcent acrimony, 14
an obſtructed perſpiration, 14, 36, 37, 399
too great inanition, 399
too great repletion, ib.
the dejecting paſſions of the mind, 399 to 401
fear, 400
cauſes of ſcurvy, *ſee ſcurvy*
of dyſentery, *ſee dyſentery*
cauſes of diſeaſes in hot climates, 463
Cramp, 129, 409, *ſee ſpaſms and antiſpaſmodics*
Coffee, its antiſoporific effects, 416
Convulſive twitchings of the tendons in fevers, 25
Colliquative ſweats, 20, 21
Coup de ſoleil, 491
cauſes, 491
effects, 491
ſymptoms, 491, 492
cure, 492
Confinement, its influence, xvii. 288, 289, 290, 291, 292
Cream of tartar attenuates viſcidities, 312—whey of, 169
a ſuccedaneum for, 169, 170
Computed quantity of bile ſecreted in a given time, 274
of ſaliva, 274
of pancreatic juice, 274
of perſpiration, 247
Circulation of the blood, when too languid, a cauſe of ſcurvy, 297
danger of too accelerated a circulation, 292, 492
benefit of a due circulation, 266

Circulation of blood, the cauſe of obſtructions of, 297, 298

Caſes.

Of a number of ſick at one time, 55 to 61
caſes of ſpaſm and ſcurvy, 98 to 100, 387
of intermittents, 145, 166
of ſpaſm and wounds, 88 to 100, 409 to 415
of a negro, 259, and 414
of a liver and ſcorbutic complaint, 427
of locked jaw, 80 to 101, 409, 414
of a narcotic patient, 415
of ſcurvy, 98, 259, 329, 347, 387, 385 to 391, 427, 466, 472 to 474
of ſcurvy and liver, 427
of nyctalopia and ſcurvy, 329, 472 to 474
of liver, 427, 432, 433 to 435

Colonies, ours in hot climates, their mode of living, 185
ſugar colonies, with reſpect of feeding of *negroes*, 391
the influence of climate, 5, 6, 183 to 187, 395 to 398
European women get their health better in the *Eaſt* and *Weſt Indies*, than in *Africa*, *ſee note, page* 390
rainy ſeaſons the cauſe of diſeaſes in them, 36, 37, 38, 446
ſeaſoning in, 462

Coſtiveneſs accounted for, 297

Clouds and meteors, their compoſition, 442, 443

Clouds and meteors, &c. Currents of air and winds, to what owing, 222, 443

Caſſava, 474, 480

Congee, 421

Climate.

Its influence on the bile, 5, 6, 7, 8
on the conſtitution, ib. ib. ib. ib. 247
on the mind and body, 5, 6, 183 to 137, 395 to 398

Climates hot, in them, the moſt active means of relief ſhould be reſorted to, and in the beginning of diſeaſe, 13
of Africa, ſome few obſervations on, 37, 38, 77—of the fever there, 55 to 61
of the Weſt Indies, 37
of Jamaica, 38, 51
tropical latitudes, 36
Bencoolen, 74
Bengal, 74
Bombay, 74
Malabar, ib. 76, 110, 111
Madras, 76
caution to ſhips bound to India, about touching at St. Jago, Madagaſcar, St. Johanna, Mohilla, Culpee, the river Hughly, Batavia, and Bencoolen, &c. 76
and thoſe bound to Africa, about Senegal, Gambia, Cachou, Whydaw, Sherbro, Benin, Beny, Calabar, St. Paulo de la Anda, Benguela, Mozambique, &c. 77, 80

Climate, Sierra Leone, 78

Climate, the Engliſh manner of living in hot climates, 183, 134, 185, 186, 187 to 190
ſeaſon of the *putrid* epidemics in *hot climates*, 392
caution to all who go abroad with reſpect to their health, 77, 80, and 345, 358 to 364
comparative effects of different climates, 395, 396
the influence of climate on Europeans, 5, 6, 183, to 187, 490
on the native inhabitants, 395 to 398
why women are in general more healthy than men in the Eaſt and Weſt Indies, 390
in Africa they are not ſo, 390
why *negroes* are better adapted to labour in hot climates, 391
why leſs ſubject to putrid epidemics, 392, 393
ſeaſoning in hot climates, what? 462
medical directions (in hot climates) in the abſence of a phyſician, 355 to 372
Choleræ morbus, xxviii. 313, 313
ſymptoms, 128
moſt frequent in hot climates, 128
rapid progreſs of this diſeaſe, 130
there is no diſeaſe in which perſons recover that they are ſo near death, 128, 130
the intention of cure, 129, 130
Choleræ morbus, the diet, 131
removal into good air conducive to the cure
antifebrile powders, their uſe in this diſeaſe, 128, 129
convaleſcents, how to be treated, 132
it is a very bad ſymptom when the diſcharge by vomit has an excrementitious ſmell, 128
the beſt way of evacuating the ſtomach of its contents, 129
external applications, 130, 131
decoction of *quaſſy*, 129
Cathartics, 63, 65, 135, 243, 402
Concomitants of the ſcurvy, 235 to 243
of the ague, 169 to 182
Cyder, 300
Clyſters, 27, 64, 37, 107, 117, 127, 130, 140, 314, 367, 369
remarks on, 420
Caſtor, a ſedative, anti-inflammatory antiſpaſmodic xxxvii
Cancer, 235
Cuprum ammoniacali, a ſedative, anti inflammatory antiſpaſmodic, ib.
Cataplaſm, 108
Chylification, how influenced by the bile, 4, 5
Camp fever, xxx. *ſee fever*
Cold diminiſhes irritability, 6
cold retards the ſeptic animal proceſs, 9
cold produced by the application of acids, 188
Conſtitution more irritable in a hot than a cold country, 7

Conſtitution, alſo affected by ſtudy, 7
and by agitation of mind. ib.
by muſcular motion, ib.
by a diet too *ſtimulating*, ib.
or wanting in due portion of vegetables, ib.
by warm liquors, ib.
by confinement to a warm room, ib.
by the cloſe air of a chamber, 8
by reſiding in a populous city, 8, 246
the bilious conſtitution is natural to a hot climate, ib.
Convulſions promote the ſeptic animal proceſs, 9
in fevers, what, 25
Cauſes of fever, 14
particular, ib.
epidemic, ib.
curative indications, 15
Coma in fevers, what, 22
relieved by volatiles, 22, 145

D.

DECOCTIONS, 21, 339, 343, 380,
Delirium in fevers, what, 23, 114, 116
Draughts, 18, 30, 65, 116, 127, 162
Delirium accounted for, 23
intentions of relief, ib. 24
when opiates are uſeful, 25
Dry ſeaſon in tropical latitudes, 36
dry air, 233, 234, 248, *ſee air*
dry fogs, 362, *ſee air*
Diet and drink, moſt proper in fevers, 32, 33, 43
in the ſcurvy, *ſee this article*
Digeſtion, *ſee under ſcurvy*
Dogmatic rules muſt give way to the dictates of ſymptoms, 52
Dyſentery, a final ſymptom in the ſcurvy, 296, *ſee dyſentery*
Dry belly-ache, 62 to 73
cure, 63
ſeldom proves mortal, 66
in Jamaica, 66
Doctor Franklin's letter on, 69
Dangles from what cauſe it proceeds, 71
Diſeaſe, fatal effects of, in hot climates, on board ſhip, in camps, x. xix. xxxvii. 95, 96
Directions for the preſervation of health in hot climates, 356, 78
355, 78
dropſy, a final ſymptom in the ſcurvy, *ſee dropſy*, 37, 44
dropſy, 169, 301, 315, *ſee dropſy and concomitants to ague and ſcurvy*

Diarrhœa.

Cauſes, 463
ſymptoms, 134
may be owing to various cauſes, 19
great caution to be uſed in ſtopping it, &c. 134
treatment in full habits, 134, 135, 136
in, caſe of bad digeſtion
when derived from an obſtructed perſpiration, 135
mercury recommended, 136
when

Diarrhœa, when it comes on in the decline of a fever, 118
ſimarauba recommended, 136
diet, 131, 134, 135
exhibition of the antifebrile powders, 135
drink, 131, and 134
with bark, 135
diarrhœa in fevers, what, 19, 118
when acids are indicated, 207
diarrhœa in the ſcurvy, 239. 312, 463
treatment, 312, 313, 314
diet, 314
diarrhœa, colliquative, 161
cured by the willow bark, 161
remarks on the feeble means hitherto uſed in dyſenteries, 421
both diarrhœa and dyſentery are ſymptoms of the liver complaint, 426
Dropſy, 168
cauſes, 168
ſymptoms, 168, 468
cure, 169 to 171, 301, 306
diet, 171, 316, 466, 469
the parts of generation tapped, 467
ſcorbutic dropſy, 315, 301, 317, 466 to 470
a final ſymptom in the ſcurvy, 296
treatment, 316, 467, 469
when accompanied with ſwelled and œdematous legs, 315 316, 468
induced by repeated attacks of the remittent fever, 430
Dropſy, a univerſal dropſy, 467
aſſociated with the ſcurvy, 467
with a fever, 467
Depuration of lime, orange, or lemon-juice, from its mucilage, 210, *ſee lime juice*
Decoction of guiac wood, 111
of the woods, 343
Diet, 32, 33, 43, 65, 131, 171, 177, 178, 185 to 195, 358, 360, 361, 363, 224, 225 to 227, 228, 229, 233, 237, 245, 250 to 219, 395
in fevers, 32, 33, 44, 65, 405, 399,
when the taſte of the patient is the beſt guide, 33, 405
remarks on, 405
antiſeptic, 405
in dyſentery, 131, 132, 314, 421
in the ſcurvy, 224 to 228, 229, 233, 235, 237, 245, 250 to 259, 260, 262, 308 to 310, 314, 324
in hot climates, 185 to 195, 358, 360, 361, 363. See *digeſtion, acids, and vegetables*
Dews and rain, how formed, 433
Definition, a conciſe one, of the aſtringent principle, 312, *ſee coffee*, 216
Dyſentery, 119
cauſes, 463
ſymptoms, 119, 416
a very ſingular one, 131
bloody flux, 120
the beſt preventatives, 120

Dyſentery, appearance of the fœces, 119, 120, 121, 122
of the ſtools on the approach of death, 121, 123
hiccough, a fatal ſymptom in the low advanced ſtate of the diſeaſe, 122
but not in the beginning, 122
the duration and iſſue uncertain, 123
a total proſtration of ſtrength, a low and malignant fever, a ſore throat or apthæ, involuntary and cadaverous ſtools with a releaſe from pain, are ſymptoms of a gangrene and and approaching death, 123
Europeans are very ſubject to it in hot climates, 123, 422
ſometimes appears alone, often uſhers in the fever, 123, 124
neceſſary to diſtinguiſh whether it is idiopathic, or ſymptomatic, 124
the firſt ſtools uſually large and bilious, 120
how to diſtinguiſh the ſeat of the diſeaſe, 119
the evacuation of blood, though alarming, ſeldom conſiderable in the courſe of the diſeaſe, 120, 121
when a lientrey ſupervenes, 121
long continuance of the flux abrades the vilious coat of the inteſtines, 121
the chief ſubſtance to be diſtinguiſhed in ſtools, 121
how the ſtomach is affected in the beginning, 122
Dyſentery, a recent flux eaſily cured, 123
how to be treated when it attacks a perſon in health, 124, 418, 419
various opinions about the exhibition of opium, 125
the antifebrile powder recommended, 125
without danger of penning up the morbid acrimony, 125
never exaſperate, but always mitigate morbid irritability, 126
convenient form of exhibiting them, 126, 127, 128, 129
counteract the ſuppoſed or real bad effects of opiates, 126
a removal into good air conducive to recovery, 133
convaleſcents how to be treated, 132
the chronic ſtage, 133, 422
mercury recommended, 136, 416, 422
comparative effects of an emetic, and a cathartic, 133
debilitating in the chronic ſtage, 422
the diſeaſe ſuppoſed to depend on the debility of the inteſtinal canal, 125
how to obviate the *tormina* and *teneſmus*, 125
drink, 131, 132, 421
dyſenteries uſually connected with liver complaints, 426
ſcorbutic dyſentery, 239, 312, 296, 428
a final ſymptom in the ſcurvy, 296,

Dyſentery, diet, 131, 314, 421
Mercury prevents inflammation and mortification, 419
its great efficacy, 416, to 422
joined with opium, 420, 422
quantity, 421, *ſee mercury* and *opium*
urine, 419
fluxes of long ſtanding ſeldom cured without mercury, 417 to 422

E.

EXHIBITION of our medicines, introduction, xxv. xxvi. *ſee medicines antiſebrile and antiſcorbutic*
Evacuants when neceſſary, xxviii.
Electricity, anti-inflammatory, antiſpaſmodic, xxxvi.
Epiſpaſtics, are anti-inflammatory antiſpaſmodic; ſo are floris cardaminis, folia aurantiorum, and flowers of zinc, xxxvi.
Europe, fevers there, admit of a more deliberate practice than in hot climates, where no time is to be loſt, 13
Eaſt Indian fever, *ſee fever*
Epidemic cauſe of fevers, 14
Excretions of the alimentary canal, 10
when to be promoted, 33
when a ſymptom of the fever proving fatal, 28, 29
bilious, when not evacuated in time, the fever becomes continual and malignant, 37
Eruptions, 43, 44, *ſee ſymptoms of ſcurvy*, &c.
Emproſthotonus, 80
Effuſion of cold water applied in ſpaſmodic affections, 83
Exantihemata, what, 20
Evil, the king's, 235
Embrios of animals, 257, 475
of plants, 475
Electuaries, 26, 85, 132
Eggs, 257, 475, 317
Emetics, remarks on, 19, 64, 129, 133, 179, 180, 181, 401, 403, 406, 417, 435
not to be given in caſes of extreme weakneſs, 19
nor in the black vomit, 179
are not ſo frequently given in bilious complaints as formerly, 417
when they may be given, 35
Endemics, 439, 453
Epiſpaſtics, xxxvi. *ſee bliſters*
Electrometer, 454, 455
Epilepſy, xxxvii. 153
Eudiometer, 455

F.

FEAR, xxxvi. 296, 400
Firſt claſs, or weakeſt antiſpaſmodics, introduction, xxxv.
Fourth claſs, or ſtrongeſt antiſpaſmodics, xxxvi.
Fen-fever, 401, *ſee fever*
Fatal effects of diſeaſe, on board ſhip, and in camps, and hot climates, &c.—x. xiii. xix. xxxviii. 95, 96, 371, 466 to 470
Fiſh, a diet of, even with the want of vegetables, does not always induce the ſcurvy, 7
when it does, 394

more

Fiſh, more nutritious than beef, &c. 256, 257, 392
Fluids animal, how influenced by climate, 5, 6, 7, 8
by paſſion, 9
by convulſions, 9
our ignorance of the change they undergo in digeſtion, 8
in circulation, ib.
in ſecretion, ib.
coſtiveneſs to be prevented, 42
accounted for, 297
Food, ſee diet, and ſcurvy
Fermentation, 64, 346, 476, 478, 482
renders water ſweet, 482
Fractured bones, the callous reſolved by the ſcurvy, 132, 295
Fever, African, 55, xxix. 27
atrabilioſa, 404
Bengal, ib. 27, 401, 404
bilious, 12 and ib. 27, 51, 53
continual, 12, 37, 38
camp, xxx.
Eaſt Indian, xxix. 27
fen, 401
phrenzy, 164
Guinea, 27, 30, 55, 62, 401
hectic, 178, 203, 207
hill, 401, 404
hoſpital, 49, 51, ib.
jail, 49, 51, ib,
Jamaica, 50, 12, 27, 37, 38,
inflammatory, xxxii 39, 62, 197
intermittent, 137, ib.
malignant, 12 and xxii.
to cure, 40 to 49, 51, 75, 123, 200 402 to 408
marſh, xxix. 27
nervous, xxxii. 113
petechial, xxxii.
putrid, xxix. 29, 113, 463,
puka jungle, 401, 404
Fever, remittent, xxix. 51, 37,
Senegal, 55, 401, 403
ſhip, xxx. 51, 52,
ſynochus, xxxii. 27, 39, 62, 197
tropical, 36, 37
typhus, 47, 113, 114, 146, ib.
Weſt Indian, 37, 12, 27
yellow, xxix. 27, 49, 54, 55
the moſt ſimple, diſtinction of, 11
claſſed into intermitting, re-remitting, and continual, 12, 398
when denominate bilious, 12
the practice ſhould be more bold and efficacious at ſea, and in hot climates, in fevers, than in theſe kingdoms, 13, 401
obſtructed perſpiration the moſt frequent cauſe, ib.
to correct and expel the cauſe, 15
epidemic cauſe, ib. 14, 36, 37
particular cauſe, ib. 36, 37, 399, *ſee cauſes, &c.*
curative indications, &c. 15
to regulate febrile impetus, ib.
obſtructed perſpiration the moſt frequent cauſe, ib. and 14
to correct and expel that cauſe, 15
to mitigate the moſt urgent ſymptoms, ib.
the ſymptoms moſt frequently troubleſome, 16, 28, 37, 38, 44, 48, 49, 50, 51, 55 to 61—137, 138, 162, 164, 166, 401, 103, 403
are, coldneſs and ſhivering, ſucceeded by heat, 17

Fever, nauſea and vomiting, 18
an anxiety, ib.
a diarrhœa, 19
petachiæ, or exanthemata, 20
profuſe ſweatings, critical or ſymptomatical, ib. and 33
watchings, 22
Coma, 44, 407, ib.
delirium, ib.
convulſions and twitching of tendons, 25
ſpams, the conſtant attendants of the laſt ſtage, 25
ſymptoms of yellow,
bilious,
African,
Weſt Indian,
Bengal,
ſhip, &c. 27 to 29
griping, when it occurs early, and abates not in proportion to the ſtools, a ſymptom of mortification, 29
bleeding, in general to be uſed with great caution, and the repetition of it in *hot climates* with ſtill greater, 30
the inconvenience of antimonials obviated by the exhibition of the *antifebrile* powders, 31
inſtances will but rarely occur where they want the addition of an opiate in fevers, 32
do not admit of the addition of *alkalies*, or the *mineral acids*, 32
the beſt mode of exhibiting the antifebrile powders, when the patient is in a doubtful ſtate of recovery, 35
Fever, when the diſeaſe proves fatal, the manner of the different excretions becomes cadaverous, &c. 28
the advantage of exhibiting the antifebrile powders at an early period of the fever, 33
the ſtomach and inteſtines ſhould be the chief object of attention in theſe fevers, 30, 31
colliquative ſweats at the decline of the fever, checked by expoſure to the open air, 33
diet and drink moſt proper, 32, 43
on remiſſion, what is to be done, 34
when reſpiration is laboured, &c. 35
how ſweating is to be managed, 33, 39
a fundamental part in the cure is to remove the patient out of bad air, or correct that he is in, 32, 40
and cleanſing out the firſt paſſages, 41
and promoting perſpiration, ib.
importance of ſupporting the ſtrength of the ſick, 43
the criſis, 43, 57, 115, ib.
bliſters, 44, 45
length of the fit, its variation, 48
remiſſion, 49
when ſevere, and joined with ſymptoms of the jaundice, called the yellow fever, 49

Fever, eat-boils, a troubleſome ſymptom of fever, 50
difficulty of claſſing the ſymptoms diſtinctly, 51
Symptoms,
in the putrid malignant fever, many of them ſimilar to thoſe in the low nervous fever, 48
eat-boils, 50
among thoſe which rarely occur are paroted ſwellings, 50 118
abſceſſes, 50, 118
ſuppurations, 50, 118
ſimilarity of the ſhip, jail, hoſpital, bilious, remitting, and malignant fevers, 51
ſymptoms of the bilious fever, 53
of the yellow fever, an unremitting ſymptom, 55
of the Guinea, African, or Senegal fever, 55 to 62
of the dry belly-ache, 62
palſy ſymptomatic, 67
the infectious ſhip fever does not ſo frequently occur in hot as in cold climates, 51, 52
the efficacy of the *antifebrile* powders in theſe fevers, 52
bilious remitting fever, diſtinguiſhable from the ſhip fever, by bilious evacuations, not equally ſteady in its ſymptoms, more violent and ſhorter in its courſe, 53
the method of obtaining a remiſſion commended, 53
Fever, though laudable, need not wait for evacuation, or remiſſion to exhibit the *antifebrile* powders, 54
yellow fever rarely occurs but under the influence of hot climates, 54
peculiarity of countenance in it, 54
an unremitting ſymptom of this fever, painful *pervigilium*, 55
an accurate deſcription of the Guinea, African, or Senegal fever, 55 to 62
no fever is ſaid to exiſt where the bile is moſt freely and copiouſly ſecreted, 53
in the worſt ſort of fevers, there is no preternatural ſecretion of bile, but a defect of it, 53
that nevertheleſs, there is an uncommon ſecretion of bile in moſt fevers of hot climates in which the cure partly conſiſts, 53
ſimilarity of fevers in all climates, 80, 398
Intermitting fever, or ague, 137
cauſes, 14, 399
ſymptoms, 137, 138, 398, 399
urine, 137
pulſe, ib.
nauſea, ib.
head-ache, ib.
ſhivering, ib.
ſweats, ib. 138
delirium, ib. 145, 146,

Fever, ſymptoms, coma, 145
cold ſtage, 138
hot ſtage, 138
quotidian ague, 138
tertian, ib.
quartan, ib.
autumnal, ib.
vernal, ib.
firſt indication of cure is to bring an irregular to a regular ague, 139, 140
bark, powder the beſt form of giving it in, 140
its flavour how beſt covered, 141
mode of giving it in the preſent practice, 141
how long to be continued, 141
its effects in the cure of diſeaſes not eaſily explained, 142
antiſeptic, 140, 141
aſtringent, 141,
tonic, 141,
its effects variouſly accounted for, but not ſatisfactorily, 142, 143, 144
its effects in the firſt paſſages, 143
its vomiting often reſtrained by wine, 143
its purging by opium, 143
its oppreſſion of the ſtomach by an aromatic, 143
Treatment in intermitting fevers, 138, 140, 145, 162, 163, 164, 166 402 to 408
in full habits, 138
if a nauſea attends, 138
if the paroxyſms appear regular, 138
Fever, cannot be ſtopped too ſoon, 167
when the firſt attack is mild, 164
if the *antifebrile* powders vomit, 163
if the patient is coſtive, 163
much danger to be apprehended from an *ague* aſſuming a continual or remitting form, 138, 164
from repeated bleedings, 165
ſhould the *bark*, &c. agree in no form by the mouth, to be injected by clyſter, 140
how to proceed after the *ague* is cured, 140
opium very effectual in removing intermittents, 139
relieves the head, 139
how its benefits were firſt diſcovered, 144
ſhortens the paroxyſm, 145
mode of exhibiting opium in this diſeaſe, 144, 145, 402
its effects, 139, 143, 144, 145, 150, 402
volatile alkali, 145, 146
cauſes, 145, 166
intermitting, 137, 408. *ſee ague*
jaundice, 171, 230
ſymptoms, 171, 172
treatment, 172, 173
Flux, 119
cauſes, 123, 124
ſymptoms, 119
cure, 123 to 136
bloody, 120
ſee ſcorbutic dyſentery, 312, and dyſentery, 119, &c.

ſome

Flux, ſome of thoſe peculiar to the puka jungle, hill, or fen fever of Bengal, 401, 403
Inflammation of the *liver*, 174
ſymptoms, 174
treatment, 174, 175, 176, 177
if hectic ſymptoms attend, 178
treatment, 178
if the *black vomit* ſupervene, 179
treatment, 179
malaene, 178
if hæmorrhages attend, 178
treatment, 179, 180, 181, 182
thoſe moſt liable to fevers, when attacked, have the worſt chance of recovery, 399
induced from an obſtructed perſpiration and impregnated atmoſphere, 463
fear, the cauſe of fever, 400
of ſcurvy, 296
of ſudden death 400
ariſes from obſtructions, 296
Flour more portable and leſs corruptible than *biſcuit*, 481
abounds in the vegetable kingdom, 474
in many of the roots of plants, 474
in various grain, 474
moſt in wheat, 474
for what purpoſe depoſited there, 475
combined in wheat with anima gluten, 475, 476
ſeparated from the animal gluten, it is *ſtarch*, *which ſee*
the other component parts of flour, 476, 477
ſuperiority of wheat flour in making bread, 477
Flour, rational of making bread, 478

G.

GENERAL epidemic cauſe of fevers, 10
Griping and ſwelling of the belly, occurring early, if not relieved in proportion to the ſtools, a ſymptom of mortification, 29
Guinea fever, 27, 36, 55, 62, 401, *ſee fever*
Guinea-worm, 78
method of cure, 79
ſuppoſed infectious by Doctor Rouppee, 79
medicines, *antifebrile* powders, aloetics, and anthelminthics, 79
fever, *ſee fever*
Gonorrhœa, the cure of, 150
Galls, acid, of 211
criſtallized, 212
Gangrene, a final ſymptom in the ſcurvy, 296
Gargles, 287, 288, 306, 307
aſtringent, 287
aſtringent acid, 288
Garlic, its uſe in agues, 155
in the ſcurvy, 299

H.

HEALTH, good air neceſſary to it, xx.
Directions for preſerving, 78, 79, 355
bile, the regulating ſtandard of health, 2
directions for its preſervation

in hot climates, 355
Heat of the atmoſphere induces fevers, 37, 463
its influence, 93, 215, 488
how obviated, 187, 183, 492, *et ſeq.*
internal heat of the human body nearly always the ſame, 195
heat and moiſture, the parents of, corruption, and diſſolvents of the animal fluids, are remotely and proximately the prediſpoſing cauſes of ſcurvy, 488
Hydrophobia, 101—method of cure, 401 to 410
Hæmorrhoidal flux, when to be promoted, 118
Hill fever, 401, *ſee fever*
Hæmorrhage, 178, 208, 403
treatment, 179, 180, 181, 182
a final ſymptom in the ſcurvy, 296
Hectic fever, 178, 202 to 207, 434, 432
ſymptoms, 178
produced by ulcers, 203
the lungs its peculiar ſubject, 204
treatment, 178, 202, 204, 207
acid in a hectic fever, *ſee acids*
a true hectic is a fever attendant on abſorption, 207
relaxing deobſtruents are indicated, 204
Hoſpital fever, 49, 51, *ſee fevers*
Hygroſcope, 440, 441
Hygrometer 401, 455

I.

IRRITABILITY diminiſhed by cold, and increaſed by heat, 7
moderate, one cauſe of the ſanguinification of red blood, 8
Inteſtines and ſtomach ſhould be the chief objects of attention in fevers, 30, 31
Jamaica, the fevers incident to the natives and to ſtrangers, 38, 50
Jail fever, 49, *ſee fever*
Jaundice, when its ſymptoms are conjoined to the putrid malignant fever, then called the *yellow fever*, 29, 171, 230
as a concomitant of the ague, 167, 171
ſymptoms of, 171, 236
treatment of, 171, 174 to 236
Ignorance of the animal functions, xxxix. 8, 195, 364, 365
Inflammation of the liver, 174
ſymptoms, 174
treatment, 174, 175, 176, *ſee liver*
Inflammatory fever, 197 to 202, *ſee fever*
Juices animal, ſtate of in the ſcurvy, 297
bile, 297, *ſee this article*
inteſtinal, 297
pancreatic, ib.
gaſtric, ib.
Inſtruments recommended by the author for aſcertaining the qualities of the atmoſphere, 454 to 456, 441

Introduction, ix.
Indications of cure in fevers, 15
to correct and expel the cauſe, ib.
to regulate the febrile impetus, ib.
to mitigate the moſt urgent ſymptoms, ib.
in the coldneſs and ſhivering, ſucceeded by heat in fevers, 17
in nauſea, 18
in the anxiety, 19
in diarrhœa, ib. and 20
in petechiæ, the remedy is indiſtinct from the fever itſelf, ib.
in profuſe ſweatings, 21
in watchings, 22,
in comatoſe affections, ib. 32
in delirium, ib. and 24
in convulſions of the tendons,
in ſpaſms, ib. 26, 27
ſee the letter T.
Jail fever, reaſon why the jail and hoſpital fever is not generated in Jamaica, and warm latitudes, *ſee fevers*, and 51
Iſland of *Diego Reys* deſtitute of vegetables, 470
Juleps, 19, 24, 180, 181
Influence of climate, 5, 6, 183 to 187, 390, 395 to 398

K.

KINGDOMS, in theſe, the practice may be more deliberate than in hot climates, where there is no time to be loſt, 13
King's evil, 355

L.

LUNGS, injured by bad air, xxii.
ſee this article
Lozenges, 280, 281
Land and ſea-breeze, how they operate on the diſeaſed, 37
their comparative qualities, 443 to 449
rational of the ſea and land breezes, 417, 447
Locked-jaw, 80, 101, 409, 416, 327
treatment, 81 to 101, and 409 to 416
to what advantage opium has been employed, 81, 82, and 82 to 101, and 409 to 416, *ſee opium*
antifebrile powders recommended, 83, 84
mercury recommended, 83, 85, 86
camphire recommended, 81, 84, 85, 86
effuſion of cold water employed, 84
warm-bath, 84
antifebrile, antiſpaſmodic medicines, 84 to 88
caſes, 80 to 100, 104, 414, *ſee antiſpaſmodics*
Leproſy of the Arabians, 236
of the Greeks, 237
of Africa, 236
that of theſe kingdoms, 237
Liniment, 85, 381, 383, 410
Legs hard in the ſcurvy, the bad ſtate of ulcers in thoſe patients, 294
painful and itchy, ulcerate when ſcratched, 294
ſwelled,

Legs, ſwelled, 132, 270
œdematous, 316
Lime-juice, 43, 44, 347, 349, 383, 362, 306, 330, 347, 390, 469
with wine and tamarinds, 330
its application in the cure of diſeaſes by the *Negroes*, 383
recommended to ſlave ſhips to provide it for their *ſlaves* on the *middle paſſage*, 384,
how to preſerve it, 331
how depurated from its mucilage, 210
rob of, how prepared, 333
how exhibited, 349
the preparation of dry lemonade, 335
in cold climates, 336
a commodious form for taking the rob of lemons, 349
Kraman's method of giving the pulp and juice, 332
the *Negroes* cure the cholic with lime-juice and malagatta, 379
they remove a teneſmus by a peſſary of lemon-peel, 380
cure the chiger with lime-juice and white-lead, 381
foul ulcers with *cocoa-nut*, lint dipped in *lime-juice*, and *palm-oil*, 382
rob of oranges, a commodious form for taking it, 349
cure the yaws and venereal diſeaſe with lemon or lime-juice, *camwood*, and ſea-bathing, 381
cure dyſenteries with lime-juice and malagatta, 380
the Negroes relieve delirium and obſtinate head-aches with leaf-tobacco, palm-wine, and lime-juice, 380
the fever with green tobacco, and capſicum, 380
remove teneſmus by a peſſary of lemon-peel, 380
corrected bitter ſaline purgatives with brandy, 421

The Lungs

Peculiarly affected in hectic fever, 204
impeded circulation of, brings on anxiety, 18
affected by the changes of the atmoſphere, 220, 221, 395
a phlogiſticated atmoſphere leaſt capable of promoting a ſalutary diſcharge from the lungs, 258, 395
peculiarly affected in complaints of the liver, 425, 427
a languid circulation the cauſe of obſtructions in the lungs, liver and ſpleen, 4, 27
how affected by a ſuppreſſed perſpiration, and impregnated atmoſphere, 463, 464, 465
that the lungs ſhould be an organ peculiarly affected in the ſcurvy, is eaſy to conceive, 279
every thing ſhould be done to unload them when ſurcharged in the ſcurvy, 283, 288
of ſcorbutics are found on diſſection to ſink in water, 297
obſtructions of, 298
Lead, its miſchievous effects, 68 to 73

Land

Land air, xvii.
the ſanative qualities of, xvii. 446, 438
more healthful and bracing than the ſea air, 444
its ſanative influence on ſcorbutic ſailors, &c. 446
when the land breeze is more healthy than the ſea breeze, 449
when not, 449
Liver, 174, 298, 401, 404, 408, 422, 427
inflamed, 174
ſymptoms, 12, 174, 175, 176, 422 to 427
a languid circulation the cauſe of obſtructions in, 298
a caſe of a cure without mercury, 427
treatment, 174, 175, 176, 427, to 438
caſes, 427, 434
in a morbid ſtate of, the liver frequently extends to the left ſide, 426
from its ſituation in the ſame cavity with the ſtomach, ſeparates moſt gall when the ſtomach is fulleſt, 274
the computed quantity of bile ſeparated in a given time, 274
probably employed oftener than once in the digeſtion of the ſame meal, 275
exceeds all the glands in magnitude, 275
ſeems moſt capable of thoſe large ſecretions produced by cathartics, 275
Liver, caſe of a ſuppurated liver laid open, 428, 432, 433
of all the viſceræ, the moſt ſubject to diſeaſe, 430
a diſeaſe common all over India and Africa, 430
not ſo common in the Weſt Indies, 430—nor in America and England, 540
pathognomonic ſymptom of, 427, *ſee bile, &c. and ſee inflammation of the liver*

M.

MADRAS is the moſt healthy government belonging to the Engliſh in the Eaſt Indies, 56
Muſquittoes and other vermin, 77
Malignant fevor, 40, *ſee fever*
Marſh fever, 27, *ſee fever*
Marmalade, 309
Mixtures, 87, 126, 175, 306, 383, 402, 403, 493
Motion and *air*, correctors of putrefaction, 355, *ſee muſcular motion*
Malaene, 180
the cure, ib.
Medical directions for private uſe in *hot climates*, 355 to 372
Muſcular motion, exceſſive, renders the conſtitution bilious, 7
Muſcular motion, exceſſive, promotes the ſeptic degeneracy, 9
moderate corrects it, 246, 255, 132, 169
Milk, remarks on, 253, 284, 475
portable, 284

Milk, inſpiſſated reſiduum of, 285
Meteors, 443
Manioca, 480

Comparative effects of our Medicines.

With *bark*, 141, 142, 143, 144, 147, 148, 240
with *antimony*, 148
antimony with arſenic, 157, 158
with *mercury*, 149, 150, 158
with *opium*, 146, 150, 151
with *camphire*, 152, 155
with muſk, 152, 153
arſenic, 156, 157, 158
ſal ammoniac, 159
willow bark, 160, 161

Medicines employed in the cure of intermitting fever, 154, 155, 159
zinc, 153, 156, 157, 158
flowers of, 154
ſalt of, 154
vitriol of, 154
volatile alkali, 2
bark, 2, 141, 142, 143, 144, 147, 148
opium, 139, 144, 145, 150
arſenic, 156, 157, 158, 164
ſal ammoniac, 159
willow bark, 160, 161
Tellicherry bark, 159
bark of the mahogany tree, 159
cortex de Pala, 159
inner bark of the elm, 155
ſulphur, 155
corrects the poiſonous qualities of arſenic, 158
of corroſive ſublimate, 158
of regulus of antimony, 158

Medicines, our own, (ſee antifebrile and antiſcorbutic powders) xii. xxvii.
their operation, xvi. xxiv. xxvi.
their object, xviii.
correct the laxity of the ſolids, ib.
the acrimony of the fluids, ib. xxvi.
their mode of action, xxiv. xxvii.
mode of exhibiting them, xxv.
evacuants when neceſſary, xxviii. xxx.
their operation on the ſtomach, ib.
on the inteſtines, xxviii.
anti-inflammatory, ib.
anodyne, ib.
reſtrictive, ib.
ſtimulant, ib.
beneficial in the ſcurvy, ib.
in bilious fevers, ib.
in the cholic, ib.
anti-acrid, ib.
ſoporific, ib.
diuretic, ib.
not neceſſarily proceeded by evacuants, xxviii.
emetic, xxvii. ib.
cathartic, ib. ib.
in the ileus, xxix.
diarrhœa, ib.
in dyſenteries, ib.
teneſmus, ib.
malignant fever, xxii.
marſh fever, ib.
yellow, ib.
Bengal, ib.
African, ib.

remitting

Medicines, remitting fever, xxii.
intermitting, ib.
camp, ib.
hoſpital, xxx.
jail, ib.
ſhip, ib.
diſeaſed liver, ib.
ſpleen, ib.
inflammatory fever, xxii.
typhus nervoſus, ib.
ſynochia, ib.
petechiales, ib.
their benefits, xxxi.
promote ſecretion, xxxi.
when they promote ſaliva, ib.
not decompoſable in the ſtomach, ib.
putrid fever, ſee ſtomach, &c. and action of our medicines, and ſee antifebrile and antiſcorbutic powders
ours, quick in their operation, and ſpeedy in their effects, xvi.
good in the Weſt Indian fever and in the Eaſt Indian fever, *ſee fever*
Muſtard whey, a ſubſtitute for, with the addition of ſyrup of ginger; ſee errata, p. 84. l. 14
Muſtard whey, how made
Meteors, and clouds, their compoſition, 442, 443
Medical directions in the abſence of a phyſician, 355 to 372
Moiſture, its bad effects, 465, *ſee heat and moiſture*
Muſk, a ſedative, anti-inflammatory antiſpaſmodic, xxxvii.
Mad dog, the bite of, 101
cure of, 101 to 110
Molaſſes, 309, 331
Malt, an infuſion of, the method of preparing, 347

Mercury.

A ſtimulant, anti-inflammatory antiſpaſmodic, xxvi.
ſimilar in ſome of its effects to the antifebrile powders, 2, 149, 150, 158
the ſucceſsful application of it in ſpaſms, 83, 84, 90, 92, 93, 107, 411
aſſiſted with the warm bath, 84, 90, 107
with *opium*, 84, 85, 86, 107, 146, 150, 151, 411, 414
with *muſk*, 87, 108, 152, 153
with *cantharides*, 93, 103, 106, 108
with *aſafœtida*, 86, 87, 112, 411
with *campbire*, 84, 85, 86, 89, 92, 106, 112, 412, 413
with *bark*, 84, 86, 91, 92, 93
with oil of *hartſhorn*, 85, 87
with veneſection, 105
with the warm bath, ib. 78, 90, 92, 105, 106
in a *flux*, 136
will cure a triſmus, or ſpaſmus gulæ, though not a hyſteria, xxxvii.
ſucceſsfully exhibited in the dyſentery, 136
not ſalutary, but pernicious in the true ſcurvy, 241
has been applied in the convaleſcent ſtage of the *ſcurvy* by Dr. Lind, 318 to 322
in a vaporous ſtate, 105, 319
combined

Mercury, combined with ſulphur, in the form of æthiops, 317, 322
more intimately combined under the form of cinnabar, 319, 322, *ſee ſulphur*
reſolved into fume, ib.
ſaline vapour or fume, 320
eſcharotic, 320
combined with mucilage, ib.
Plenk's ſolution, 320
Plenk's pills, 321
pills for the cure of dyſentery, 419
recommended in *fevers*, 400, 404, 408
alone or combined with opium, 400, 412
with opium aſſiſted by the bark, 405
joined with opium, 412
when ſalivation ſhould be avoided in dyſentery, 422
the early and extenſive uſe of mercury in hot climates, 417
the method of exhibiting in dyſentery, 418, 419 to 422
prevents inflammation and mortification of the bowels, 419
quantity of calomel uſually neceſſary, 421
how to be managed in the chronic ſtage of the diſeaſe, 422
uſed in bilious fluxes with great ſucceſs, 417
calomel and opium in dyſenteries, 420
joined to ipecacuanha, 419, 422

☞ The reader is requeſted to attend to the *errata*, or errors, omiſſions and obſervations annexed under this head, *ſee errata, or errors, omiſſions and obſervations.*

Notes to be added at the bottom of page xxxvi. 248, 363, 374, 378, 478; 417, 286, l. 2; *for which ſee errata or errors.*

Alterations in the text, p. 215, l. 28; 289, l. 14 and 15; 300, l. 26; 321, l. 13; *for which ſee errata, or errors.*

Negro diſeaſes, 147, 229, 374, 385 to 397
ſubject to ſpaſm, 81
extraordinary caſe of one, 414
how obviated, 95
cacabay, 374
chicoes, or Guinea-worm, 78, 380
cowrap, ſee the note, 378
chiger, 381
bone-ache, 374
crakras, or cowrap, 377
how cured, 378
dirt eaters, 375
how obviated, 377
Guinea-worm, or chicoes, 78, 380
exomphalos, 380
the *fly* diſeaſe, 382
ſleepy diſeaſe, 378, has nothing to do with the note marked †.
yaws, ſee this article
African or black ſcurvy, 230
caſe of one in what is called a vegetable ſcurvy, 259
caſes of ſcurvy and ſpaſm, 389 to 391

Negro diſeaſes, ſcorbutic contractions, 387 to 389
both derived from want of air and exercise on the *middle paſſage*, 386 to 389
hæmorrhages, and a purging of blood, 389
Dunco ſlaves more ſubject to diſeaſes on the *middle paſſage* than the *Fantee ſlaves*, 389
they cure the fly diſeaſes with tobacco, 382
great mortality of *ſlaves* on the middle paſſage, 391
why domeſtic *Negroes* in the Weſt Indies are leſs ſubject to diſeaſe, and of a better habit of body, than thoſe employed in the plantation, 392
obſervations on the perſpiration of *Negroes*, 396
on their colour, 396, 397
on the influence of climate, 395 to 398
why they are better adapted to labour in hot climates, 397
the *Negroes* more *hardy* and *bold* than the *Indians*, 397
advice to the PLANTERS of our SUGAR COLONIES in victualling their *ſlaves*, 392
they employ palm-oil, lemon-juice, and palm-wine, in the cure of diſeaſes, 383
the Hottentot method of cupping, 383
obſervations on the diſeaſes of *ſlaves in the middle paſſage*, 384 to 391
Negro diſeaſes, it is recommended to provide them with lime-juice, 384
mode of exerciſe, 386, 387
Fantee ſlaves, why preferable, 399—moſt diſpoſe to mutiny at ſea, 390
women ſlaves leſs addicted to diſeaſe than the men, 390
Negroes leſs ſubject to putrid *epidemics* than the white inhabitants of the *ſugar colonies*, 392
from the nature of their food, 392
why the *Negro ſlaves* in the Weſt Indies prefer meats that are ſalt and tainted to thoſe that are freſh and ſound, 394, 261
the advantage of exerciſe to *ſlaves*, on their paſſage to the Weſt Indies, 390
not ſubject to tetanus and ſimilar ſpaſms on the weſtern coaſt of Africa, from the practice of anointing their bodies, 95
their method of curing the cholic, 379
the *Hottentot* method is by cupping with an ox-horn, 383
the great quantity of opium taken by a *Negro* to relieve the locked-jaw, 414
Negro-lint, 383
diet, 259. 378, 383, 386, 391 393, 394
in the ſugar colonies, 391, 261

Negroes, on board ſhip, 386
their uſual diet, 386, 387
in the Weſt Indies, 259, 261
remarks on, 259, 261, 391
a more liberal uſe of animal food recommended, 392
liniment, 382
cupping, 383
decoction of herbs, 380
of camwood, 380
of tobacco, 382
poultice, 380, 381, 383
cathartic, 383
delirium, 380, 387
fever, 380, 387
venereal diſeaſe, 380
obſtinate head-aches, 380
dyſentery, 380
teneſmus, 380
ulcers, 381, 383, 389
bruiſes, 383
ſhattered fleſh, 383
wounds, 381
cholic, 379, 383
peſſary, 380
ſores, 381
ſwellings, 383
a triſmus, 387
thoſe moſt ſubject to the ſcurvy, 389
in every ſtage of it, 387, 391
a caſe of a vegetable ſcurvy, 259
how cured, 391, 260
why the *ſlaves* in the Weſt Indies are leſs ſubject to the putrid epidemics than the *whites*, 392, 393
great mortality on the *middle paſſage*, 384, 391
to what attributed, 384, 390
Negroes, how it may be prevented, 384
rapidly growing fat on the middle paſſage, a bad ſymptom, 389
Nervous fever, xxxii. *ſee fever*
Noſtrums, 353
Nervous diſeaſes, the cauſe, 463
effect of our medicines on the nerves, xxxiii.
Nyctalopia, or night-blindneſs, aſſociated with the ſcurvy, 329, 472
a diſeaſe common in the Eaſt Indies to thoſe who eat hot *rice*, 471
caſes, 329, 472
an intermittent diſeaſe, 472, 473
the opinion of the ancients about it, 472
ſymptoms, 329, 472
cure, 330, 473
National character, how influenced by the *bile*, 5
by moral cauſes, 6, 395, 396
Nauſea, however excited, increaſes the biliary diſcharge, 10
accounted for, 18
Negroes, why leſs ſubject to ſpaſm, 95, *ſee Negroes*

O.

OINTMENTS, 64, 85, 106, 117, 130, 176, 493
Oil in ſpaſm, 89
applied to the temples, lulled the pain, 90
Oatmeal, 309
Omphroſtotonus, 80
Opiſthotonus,

Opiſthotonus, 80
Operation of our medicines, xvi. xxvi. xxx.

Opium.

Opium, ſimilar in ſome of its effects to the antifebrile powders, 1, 146, 150, 151
its various ſucceſs in ſpaſms, 81, 82
the amazing extent to which it has been given, 82, 91 to 98, 409, 413
aſſiſted by a warm bath, 90, 91, 89, 107, 92
with muſk and cinnabar, 414
with *muſk*, 87, 108
with *camphire*, 84, 85, 86, 91, 92, 93
with *bark*, 84, 86, 91, 92, 93
with a bath of milk and water, 89
with a bath of oil, 89
with oil, 82, 85, 87, 90
in a *dyſentery*, various opinions about its exhibition, 125
in *cholera morbus*, 129
in diarrhœa, 135
in fevers, 404, *ſee fever*
continual, *ſee fever*
remitting, 408, *ſee fever*
intermitting, 139
ſhortens the paroxiſm, 145
how its benefits were firſt diſcovered, 144
its effects, 139, 143, 144, 145, 150
watchings in fevers relieved by opium, 22
in delirium, unattended with ſtupor, 25
Opium, in ſpaſms in fevers, 27
opiate with antimonials, 31, 38
recommended in the *ſcurvy* by Dr. Milman, 240, 241
will eaſe an aſthma, but not a convulſion, xxxii.
a ſtimulant inflammatory antiſeptic, xxxii.
recommended by Dr. Morgan in comatoſe ſtupors and deliriums, common in nervous fevers, &c. 302
Dover's powder, 300
the gentle opiate, 139, 124
bad effects of an over doſe obviated, 415
the exceſs of its ſoporific effects counteracted, 415, 341, 416
other cauſes than habit, enable the Turks and Perſians to diſpenſe with it in quantity, 416
inſtance of the amazing quantity taken without any bad effects, 415
its great uſe in ſpaſms, 81 to 98, 409, 413
caſe of a narcotic patient, 415
combined with James's powders, 407
in a ſpaſmodic caſe, 409, 410, 413
changed for aſafœtida, 411
joined with mercury, 412
always procured a temporary relief in ſpaſms, 413
with calomel, in dyſenteries, 420
in inflamed *liver*, 434
Opthalmias, 47

Obſervations or remarks on medical men, 369
on the diſeaſes of Negroes, 372
Obſtructions, how removed, 307
how cauſed, 276 to 299
accounted for, 297

P.

PALM wine, 329, 378, 380, 383, 478
is an excellent ferment, 331, 478
promotes a vigorous fermentation, 331
oil, 329, 378, 383
their application in the cure of diſeaſes by the *Negroes*, 329, 378, 383
cures the crakras and cowrap, 378
Puka jungle fever, 401, 404 *ſee fever*
Pickles, 309
Preſerves, 309
Peruvian bark, a ſtimulant, an inflammatory antiſpaſmodic, xxxvi.
how ſaved in fevers, 34
Pulſe, a compariſon of it in hot and cold climates, 6, 7
in fevers, 13
remarkable ſenſation of, 61
Panaceas, 304
Purpureum lumen, in Engliſhmen to what owing, 8
Pains and hardneſs of the limbs how cured, 317, 324
Paſſion violent, promotes the ſeptic degeneracy of the animal fluids, 9
Putrid fever, 29, *ſee fever*
Putreſcence in the animal ſyſtem, produced by paſſion, 9
by exceſſive muſcular motion, ib.
by convulſions, ib.
Palſy, 67, 110, *ſee apoplexy and coup de ſoleil*
Paſte, antiſpaſmodic, 139
Plethora, xxviii. a ſanguine one frequently exchanged for a bilious, 8
Phrenzy fever, 164, *ſee fever*
Practitioners may be more cautious in theſe kingdoms, how they ſpur or bridle a fever, than in hot climates, where every thing that can be done ſhould be done immediately, 13
Peſſary, 380
Profuſe ſweating in fevers, are either critical or ſymptomatical, 20
Profuſe colliquative ſweats, a ſalutary method of giving a check to them, 33
Potatoes, raw, uſed as an antiſcorbutic, 331
Poultice, 23, 87, 108, 115, 381, 383
Pills, 26, 86, 107, 112, 135, 172, 175, 299, 321, 419
Pancreatic juice, the computed quantity ſecreted at one meal, 274
Regimen as a preventative and reſtorative, 265
Prickly heat, 489
cauſe, 490
ſymptoms, 489
cure, 490
accounted for, 490

Phthiſis pulmonalis, the vitriolic acid improper for it, 181
Piles, a ſymptom of a diſeaſed liver, 427
Paroted glands, ſwellings and ſuppurations of, 50
Perſpiration, the quantity ſecreted, 207
obſtructed, the cauſe of fever, flux, ague, or ſcurvy, 310, 467, *ſee fever, flux, ague, and ſcurvy*
frequently prove fatal, 311
proofs of it being obſtructed in the ſcurvy, 350
a well known cauſe of many diſeaſes, 311, 360, 463 to 466
cold liquors drank when heated, obſtruct perſpiration internally and externally, 360
accounted for, 21, 94
beneficial in the ſcurvy, 464, *ſee ſweat*
Preventatives, 283, 289, 340, 351, 384
dry belly-ache, 63
flannel, 63
ginger tea, 63
ſour-crout, 338, 340
tincture of bark and orange peel prevents diſeaſes, 264, 265
the beſt preventative in the *ſcurvy*, is a free and regular ſecretion, 464
the beſt preventative of the dyſentery, 120
and all putrid malignant diſeaſes, 120
chearful ſociety, 289
air and exerciſe, ib. 359
in the flux, 120
IN THE SCURVY, fermented liquors, 120, 309
Preventatives, Bread of wheat and flour well fermented, 477
wine, 263, 393
beer, 344
cyder, 309
acid juices, 309
acid ſubaſtringent fruits, 262, 309, 464, 465
greens, 262, 309
fleſh broths, 262, 308
milk, 253
whey, 284
bitters, 265
ſugar, 263, 309, 331
vegetables, 309, *ſee vegetables*
porter, 482
decoction of the woods, 343
water gruel, ſago, ſaloop, 314
porter beer, 344
portable beer, 309, 482
ſweet wort, 351
tartar ale, 344
ſour crout, 338
ſour beer, 470
medicated beer, 171

PERUVIAN BARK.

A ſtimulant inflammatory antiſpaſmodic, xxxvi.
ſimilar in ſome of its effects to the antifebrile powders, 141, 142, 143, 144, 147, 148
to be immediately thrown in, on a remiſſion of the fever, 34
when not to wait a remiſſion for its exhibition, and when not to be too haſtily adminiſtered, (or) 34, 53, 54
nine parts out of ten of the

Peruvian bark may be ſaved, by a prudent uſe of the *antifebrile powders*, without the danger of abdomidal obſtructions, 34
when theſe powders are to be added in ſmall quantities to the bark, ib.
when to be perſiſted in, 36
in ſpaſms, 84, 86, 91, 92, 93
aſſiſted by *opium*, 91, 106
with antimonial wine, 91
with camphire, 92, 112
with wine, 93
with bliſters, 93
with mercury, 107
in a flux, 136
the preſent practice in *agues*, 141
conſidered as an *aſtringent*, 141 142
as an *antiſeptic*, 141, 142
this power increaſed by vinegar, 142
as a *tonic*, 142
this power increaſed by acid of vitriol, 142
its mode of operation, 142, 143, 144, 166
as a ſpecific, 143
the number of years in uſe, 143
yet its action or mode of operation not yet ſatisfactorily explained, 144
how its flavour beſt covered, 141
the beſt form of giving it, 140
ſucceſsfully applied in the ſcurvy, 260
with wine and opium in ſcorbutic dyſentery, 313
Peruvian bark, reaſons adduced why the *bark* may be given with ſafety in every ſtage of the fever, 405
in locked jaw, 413
in *liver* complaints, 429
decoction of colombo root and bark, 434, *ſee errata*
Phlogiſtians, 458
Pabulum vitæ, 217, 218, 455, 461
Purges, 63, 135, 243, 402
Phrenitis, 114, 117 to 118
Petechial fever, xxxii. *ſee fever*
Petechia, what, 20
Perſpiration, its obſtruction excites *fear* and *ſorrow*, 296, *ſee perſpiration and ſcurvy, &c.*
Powders, 135, 300, 302, *ſee antifebrile and antiſcorbute powders*

R.

REDUNDANCE of bile counteracted by our medicines, 2, 4
generally connected with a diſordered ſtate of the alimentary canal, 10
Remittent fever, 37, 51, 399, *ſee fever*
Raw potatoes, antiſcorbutic, 331
Remiſſion in fevers, what is to be done, 34
ſhortneſs of, 57
Rational of the operation of bliſters, 47
Rational of the ſea and land breezes, 447
Rum and arrack new, their bad effects, 361
Rabies canina, 101

Rabies canina, treatment, 103 to 110
medicines, 101 to 110
Rheumatiſm, 301
Relaxation of body, its effects, 215, 251, 259, 350, 463
the principal cauſe of diſeaſe in the torrid zone, 463
Repletion aſſigned as a cauſe of ſcurvy, 229
Regimen as a preventative and reſtorative, 265
Rain and dews, how formed, 443
the fall of rain cleanſes the atmoſphere of animalculi, 445
rainy ſeaſon in the Britiſh ſettlement in *Africa*, 36, 403
the cauſe of diſeaſe in hot climates, 38, 403, 446
Relaxation, 463
the cauſe of putrid diſeaſes, 463
of nervous diſeaſes, 463
of ſpaſms, 463
Reſpitation, 220, 248, 277, 278, 309
he pernicious effects of reſpiring bad air, xx. xxi. xxii.
origin of the ſcurvy, and putrid malignant diſeaſes, xxii. xxiii.
laboured reſpiration how relieved, 35
effects of reſpiring ſtagnated air 51, 54, 77, 216, 217, 230, 249, 362, 386, 399
advantage of reſpiring pure air, 133, 277, 278, 290, 358, 359
reſpiration of animals vitiates the air, as combuſtion, &c. does, 218, 245 to 247, 359
Reſpiration, how reſtored, 224
vital air maintains reſpiration longeſt, 218
the gravity and levity of the air affect reſpiration, 220, 223
air ſaturated with moiſture, unfit for reſpiration, 464, 465
the quantity of perſpirable matter that goes off by reſpiration and expiration, 247
Rice, 309, 421, 470, 474
eaten hot, injurious to the eyes, 470
cauſe of *nyctalopia* among the inhabitants of Amboyna, Banda, Java, Maldiva, and the Moluccas, 471, *ſee nyctalopia*
the Dutch Eaſt India ſeamen forbid the uſe of *hot rice*, 471
is by no means a ſtrengthening corroborating food, 470
affects the optic nerve, 471
jelly of, 421
gruel of, ib.

S.

SCURVY, xxii. *ſee ſcurvy*
Second claſs of antiſpaſmodics, xxxv.
Ships, a caution in their paſſage to India, &c. 76
Swarms of inſects, &c. in Africa, 77
Sinapiſm, 87, 115
Senegal fever, 51, 401, 403, *ſee fever*
Ship fever, 51, 52, *et ſeq. ſee fever*
Synochus fever, 27, 39, 197, *ſee fever*
Symptoms,

Symptoms, *ſee fever and ſcurvy*
Stomach, how acted on by our medicines, introduction, xxvi.
as an emetic, ib.
as a cathartic, ib.
as a ſudorific, ib.
as a ſoporific, ib.
anodyne, ib.
anti-inflammatory, ib.
ſtimulant, ib.
tonic, ib.
antiſeptic, ib.
anti-acrid, ib.
when they excite nauſea, ib.
when diuretic, ib.
and bowels how acted on, xxvi xxx.
ſudden relief, xxx.
not decompoſable in the ſtomach, xxxi.
nor neutralized there, ib.
Stomach, the chief object of attention in fevers, 30, 31, *ſee ſtomach*
Stimulant, or inflammatory antiſpaſmodics are, electricity, mercury, valerian, aſafœtida, Peruvian bark, opium, &c. xxxvi.
Ship fever, 51, *ſee fever*
Synochus fever, 197, *ſee fever*
Sedative, or anti-inflammatory antiſpaſmodics are, bleeding, epiſpaſtics, muſk, camphire, caſtor, æther, the floris cardaminis, the folia aurantiorum, the cuprum ammoniacala, the flowers of zinc, &c. xxxvii.
Spiritus mindereri, 39
Sour cabbage, 338, 339, 340
Steel, ſimilar in ſome of its effects to the antifebrile powders, 2
Seaſons in tropical latitudes, 36, 403
rainy, ib.
dry, ib.
Sedative ſalt of borax, ſimilar in ſome of its effects to the antifebrile powders, 2
Standard of animal heat, nearly the ſame in all climates, 6
Scald head, 238
Struma, ib.
Septic animal proceſs weakened by cold, 6
accelerated by heat, 7
by irritability, 9
by change produced in the nervous ſyſtem, ib.
Sugar, a preventative of the ſcurvy, 352
Sanguine plethora exchanged for a bilious one, 8
Sea, at ſea, in long voyages, whatever is done in fevers, &c. ſhould be done immediately, 13
Symptoms moſt frequently troubleſome in fevers, 16
a ſenſe of coldneſs, 17—ſhivering, 17—ſucceeded by heat, 17—a nauſea, 18—— and vomiting, 16—thirſt, 16—anxiety, 18—a diarrhœa, 19—petechiæ, 20—profuſe ſweatings, 20—watching, 21—delirium, 23—comatoſe affections, 17 and 22—and convulſions, 25
Sick, their diet and drink in fevers, 32, 33
Salutary effects of exhibiting the antifebrile powders at an early period

period of the fever, 33
Symptoms of the fever proving fatal, 28, 29
Stomach ſhould be the chief object of attention in thoſe fevers, 30, *ſee ſtomach*
Scrophula, 150, 255
Sores of Negroes, *ſee Negroes*
Sea and land breeze, their effects in fevers, &c. 37
rational of, 447
their comparative qualities, 443
Sweetening water, the method, 78, 485
Spruce makes an antiſcorbutic drink, 311
Smoke or fumes of tobacco applied in ſpaſms, 91
of cinnabar, 319
Saccharum Saturni, its effects, 69
Salutary regulations on board ſhips recommended, 370
Stranguary on the application of a bliſter prevented, 45, 46
Sulphur corrects the poiſon or virulence of antimony, of arſenic and of corroſive ſublimate, 158—and renders mercury inert, 322, *ſee mercury*
Squills, 170, 247, 468
in the dropſy, 170, 242, 468
Sweet wort, the method of preparing, 347, 351, 353
Stools black, 179
Sugar, a good antiſcorbutic, 330
Solutions, 163, 170, 304, 320
Saline draught, 18, 127, 400
Sea and land breezes, 37, 443
their operation, &c. 443
their comparative qualities, 443 to 449
Sea and land breezes, rational of, 443 to 449
Seaſoning in hot climates, what, 462
Spaſm, 80 to 101, 409 to 416
cauſe, 463
connected with ſcurvy, 387
caſe of, 98 to 100, 387
common between the tropics, 93, 94, 463
ſee antiſpaſmodics
Scrotum, and parts of generation tapped, 466
Setons, put in the belly in a ſcorbutic dropſy, 469
Starch, the amilious part of wheat flour, 476, 479
bread made of it, 478
Salep, 421, 474, 480
Sago, 421, 480, 489
Squalls of wind at ſea, why charged with water, 458
Sleet and ſnow, how formed, 443
Stomach is an organ of moſt conſequence of any in the ſyſtem, 193
endowed with the higheſt ſenſibility, 193
excites univerſal action to expel whatever is injurious, 193
ſhould be the chief object of attention in fevers, 30, 31
a fever ſeldom finds it in proper order, 199
an univerſal ſympathy reigns between this organ and the whole ſyſtem, 197
how affected by acids, 192, 193, 195, 196, 199, 201, 208, 253, 258

liver

Stomach, the functions of the ſtomach uſually deranged in complaints of the liver, 425
Saliva, at one meal, the computed quantity ſecreted, 274
there are many diſorders that owe their origin to a vitiated ſaliva, 191
all thoſe that may happen to the mouth, fauces, and appendages, down as low as the ſtomach, depend in their cure upon the purity of this ſecretion, 191
irregular ſecretions of, a ſymptom of diſeaſed liver, 424
a morbid increaſe of, a ſymptom of the ſcurvy, 286, 293
Spleen, 167, 178
diſeaſes of, 167, 298
ague cake, 167, 178
obſtructions of the ſpleen, lungs, and liver, 298
Salivation beneficial in a moderate degree, 83, 136, 174, 371
in the tetanus or locked-jaw, 83 to 105
in ſome ſubjects a ptyaliſm is ſooner raiſed than in others, 109
in dyſentery or flux, 136
in liver complaints, 174, 178, 434
in dropſical diſeaſes, 317 to 322
when it ought be avoided, 422
Snakes, 256
Sternutatories recommended, 492
Sweat promoted, 149
Sweat, when profuſe and colliquative, a ſalutary change effected by expoſure to open air, 33
Sweat, how to be managed, 33, 39, 42
though profuſe, may be ſalutary 35, 39, 48
brought on by bad management, 33
accounted for, 21, 94
profuſe, 20, 48, 137
ſymptomatical, 21
critical, 39, 43, 59, 61
copious and ſalutary, 35
cold, a ſymptom of approaching death, 28
a ſweating draught, 91
a ſweating tincture, 301
ſweating pills, 299, 300
uncritical ſweats, 114
colliquative, 33
promoted, 149, 151
reſtrained, 33
quantity of, 247
a beneficial evacuation in the ſcurvy, 244, 464, 465
ſuppreſſion of, a cauſe of ſcurvy, 228
often proves fatal, 311
the cauſe of ſcurvy, ib. and 216, 218, 228, 230, 279
the cauſe of fever, 14, 311
partial ſweats, a ſymptom of a diſeaſed liver, 423
Sorrow and fear, a cauſe of ſcurvy 296
a cauſe of fever, 400
a cauſe of ſudden death, 400
SCURVY, xvi. xxii. xl. 214.
It is juſtly a received notion in phyſic, that if the cauſes be removed,

removed, the effect will ceaſe.
Scurvy, the nature of, 196, 215, 228, 233, 259, 263, 297, 298, 345, 349, 350
See acids, bile, digeſtion and cauſes, ſymptoms and cure of this diſeaſe. And air, atmoſphere, &c.
an extraordinary ſpecies of ſcurvy, 466
a vegetable ſcurvy, though apparently a contradiction, exemplified, 259
the African or black ſcurvy, 236
fatal effects of this diſeaſe in the *ſlave trade*, 386 to 391
induced by farinaceous and leguminous food on the *middle paſſage*, 229, 386
when in the Canary iſlands, 393
why not in ſo damp a ſituation as among the Venetians, 390
ſcorbutic habits, 463
proofs of a ſtoppage of perſpiration in it, 349, 350
of a relaxed ſtate of the ſolids, 349, 463
of the diſſolved ſtate of the fluids, 350
caſes of, 98, 347, 385 to 291, 427, 466
aſſociated with a fever, 467
this but rarely happens, 239
with a dropſy, *ſee dropſy*.
with a dyſentery, *which ſee*.
CAUSES, 214
when productive of it in a high degree, it becomes *epidemic*, &c. 214
Scurvy, to be found often in long voyages at ſea, 215, 230
ſometimes in camps, garriſons, and armies, 215, 230
not the *endemic* of cold climates excluſively, 215, 224, 230, 488
but of both the extremes of cold and hot climates, 215, 233, 453
frequent in temperate climates, 215, 217, 453
particulary on board ſhip, 216, 230, 453
there often cauſed or promoted by bad air, xxii. *ſee this article*.
by an indigeſtible, unaſſimilable diet, *ſee theſe articles*.
by violent muſcular motion, 9
not unfrequently cauſed or promoted by the quick changes of the atmoſphere, 215, 216, 222, 223, 230, 443 to 449, 453 to 462
heat and dryneſs, 362
heat, 470
heat and moiſture, 37, 362, 453, 454, 464 to 466
the diſſolvent of the animal fluids and parents of corruption, 488
cold and moiſture in any latitude a primary cauſe, 215, 311, 451
of the atmoſphere, or ariſing from marſhes, ſwamps, oozy banks of rivers, night dews, or

or morning exhalations, 311, 362, 230, 449, 455
Scurvy, the warmer the climate the more ſenſibly felt, 215, 224, 311
the more relaxed the body the more ſuſceptible of the *impreſſion* of theſe changes, 215, 233, 297, 463
whether weakened, or debilitated by previous diſeaſe, 216, 230
worn down by fatigue, 216
or reduced by an indigeſtible, unaſſimilable diet, 216, 229
or whatever impairs the digeſtives organs, 264
or by breathing a corrupt, foul air, induce *ſcurvy*, 216, 230
drinking putrid water, 358
eating decayed, rancid, or putrid proviſions, 235, 358
and according as their exiſtence is permanent, or caſual, in proportion to the degree of violence with which they act, and according to their different combinations, give riſe to a diſeaſe more or leſs epidemical, and of various degrees of malignity, 214
debility, 216
defective nutrition and diminiſhed ſecretion the cauſe and effect of ſcurvy, 229, 298, 311
or it may proceed from the unfitneſs of a ſea diet, 225, 228
Scurvy, inducing depletion or inanition, 229
without proper correctors, 225, 450
a ſalt diet does not neceſſarily induce ſcurvy, 225
may be induced without, 225
from a defective nouriſhment, 216, 226, 228, 229, 311
caſes in point, 226, 466
obſtructed perſpiration, 216, 218, 230, 279, 311, 464, 467
its operation on the animal œconomy, 311
the agency of the air, and changes of the atmoſphere induce ſcurvy, 220, 221, 451, 453, 463 to 464
rages ſometimes in one and ſometimes in another place, 223
ſometimes ſtationary, 223
probably no country or climate free from it, 224
is found in Africa, 224
in America, 224
in the Eaſt Indies, 224
in the Weſt Indies, 224, 466
and in Europe, 224
particularly on board ſhips in all countries, and where heat is predominant, 224, 453, 464
relaxation of the *ſolids*, 215, 251, 297, 463, 464
ſcanty ſecretion, 228
and putrid, broken down, or diſſolved ſtate of the fluids, 228, 463
are both the cauſe and effect of ſcurvy, 228

Scurvy, or a depravity of the fluids and a relaxation of the solids, arising from a daily want of good juices, from a bad assimilation of these every day taken in, 228, 298
repletion as well as depletion *assigned* as a *cause* of *scurvy*, 229, 385 to 391
continual vegetable diet in hot climates, *assigned* as a *cause* of *scurvy*, 258, 259, 260
the very essence of scurvy is debility, 264
which is increased by every thing that weakens the vital principle of the living solid, 263
and by whatever *cause* the constitution is enervated, 263
whether from actual debauch, or any other excess that is persevered in, 216, 350
sickness or disease, 216
long abstinence, 226
age, 226
weakness, 228
diminished vigour, 263
languid circulation, 228, 297
danger of too accelerated a circulation, 292
want of energy, 228
sorrow and fear are *causes* and symptoms of scurvy, 296
indolence, 288, 289, 330
confinement, xvii. 288, 289, 290, 291, 292
obstructions, 216, 261, 288, 297, 463
Scurvy, by promoting a putrescent tendency, 261
the scurvy promoted by cruising in the British channel and other narrow seas, 217, 450
differ from the main ocean in being impregnated with particles from the land, 217, 443 to 449
the causes inducing scurvy and putrid diseases operate upon the living solids, in weakening the vital principle, 263, 451, 453, 463 to 466
are all causes or predisposing causes of scurvy, promote it, or render the constitution susceptible, or impressive of this almost irresistible disease, in a mild or malignant degree, 264
Symptoms
the *symptoms* of diseases should be considered as the language in which unerring *nature* addresses us, and from which we are to gather the indications of *cure*
as innumerable as the *causes* are the symptoms, 229, 215, 224, 230
these generally spoken of by authors, 228, 230, 232, 233
offensive breath, difficulty of breathing, discoloured skin, livid spots, inactivity, oppression, weariness, timidity, dejection, lethargy, swelled legs,

legs, *putrid gums*, hardneſs in, and contraction of the limbs, waſting of the legs, ſtreaks on the thighs, acute pains, tremor, fainting, fits, effuſions of blood by vomit, ſtool, and from the pores, ſolution of continuity, reſolution of callous matter in fractures, bad ulcers, &c. 232, 233

Scurvy, a relaxed ſtate of the *ſolids*, and putrid diſſolution of the *fluids*, 233

or, a depravity of the fluids, and a relaxation of the ſolids, 298

pulſe, 230

blood, 230

and urine, 231

not uniform in their indications, 231

the uſual concomitant diſeaſes in the ſcurvy, 235

athrophy, 235

ſcrophula, 235

king's evil, 235

jaundice, 236

leproſy of the Arabians, ib.

of Africa, ib.

or black ſcurvy in the Weſt Indies, 236

elephantioſis, 236

leproſy of the Greeks, 237

that commonly met with in theſe kingdoms, 237, differs from true ſcurvy, 337

ſtruma, ib.

ſcald head, ib.

humid, ib.

dry, ib.

Scurvy, the ſymptoms regularly noted, as they uſually occur in the progreſs of the diſeaſe, 269

final ſymptoms, 296

in the firſt ſtage of the diſeaſe, 268, 269, 270

the firſt *pathognomonic* ſymptom, inſeparable from this diſeaſe is the gooſe-ſkin, 270, 271, it ſometimes appears ten or twenty days before the gums are affected, 272

the ſubſequent *pathognomonic* ſymptom is the ulceration in the gums, 272

a morbid defluxion of ſaliva, 279, 286, 293

in the ſecond ſtage of the diſeaſe, 292, many more ſymptoms occur than thoſe mentioned, but are not ſo uniformly conſtant in all caſes, amongſt theſe the too great *defluxion* of *ſaliva* is a principal one, 293, 279, 281

in the third ſtage of the diſeaſe, the ſymptoms are ſo very ſevere, that the utmoſt ſkill and attention, accompanied with the advantages of a ſalutary regimen and proper medicines, only can inſure a cure, 292

a morbid defluxion of ſaliva, 293

ſcorbutic ulcers, 294

rather aggravated than alleviated in hot climates, particularly on board ſhips, 326, 327

Nyctalopia, or night-blindneſs, 329

fear,

Scurvy, fear, a ſymptom, 296
ſorrow, ib.
the ſtate of the bile in this diſeaſe, 297
DIGESTION, and the aſſimilation of our food, have no ſmall ſhare in the prevention, cauſe, and cure of this diſeaſe, 216, 225, 226, 228, 264, 274, 297
the ſtate of animal bodies muſt neceſſarily be influenced by their *diet*, 249, 250, 264
the rational of digeſtion, 234, 9, 10, 11, 182, 184, 188, 190, 226, 227, 228, 264, 274, 275, 297, 203
and of aſſimilation of our food, 216, 226, 227, 228, 264, 274, 275, 392, 394, 475, *ſee wheat*
our ignorance of both, 8, 195, xxxix. 364, 365
how influenced by the bile, 4, 5, by acids, 192, 193, 194, *ſee bile and acids*.
vegetable food, 249, 250, 251, 252, 253, 309, 331, 346, 464, 475, *ſee wheat*.
difficult of digeſtion, 251
generate acidities, 250, 254
is antiſeptic, 254
the digeſtion of a continued *vegetable diet*, in hot climates, promotes *ſcurvy*, 252, 258 to 260
alcaleſcent vegetables promote digeſtion, 252
animal food, 233, 250, 251, 253
abſorb acidities, 252, 253
Scurvy, firſt exiſted in a vegetable form, 250
eaſy of aſſimilation, 254
the oily or fat parts moſt difficult of digeſtion, 275
corrects putreſcency, uſually deemed a vegetable ſcurvy, 250, 261
is more nouriſhing and ſtrengthening than vegetables, 254
milk an half animal ſubſtance, 253, 475
the uſe of buttermilk, 275
eaſy of aſſimilation, 253
a due admixture of animal and vegetable food, a good preventative of and a reſtorative in the ſcurvy, 233, 259 to 261, *ſee wheat*.
a conſtant diet of animal food promotes putrefaction, 255, 257
The mutual dependence ſubſiſting between the productions of the vegetable and animal kingdoms, 250 to 261, 394
unfitneſs of a ſea diet to produce a well digeſted aſſimilable chyle, 224, 225, 228
without proper correctors, 225
require the powers of digeſtion and aſſimilation to be remarkably ſtrong, 228
hence inactive, ſluggiſh and inert matter, can never become the proper object of our food, becauſe it does not ſufficiently ſtimulate the powers of digeſtion, 203

Scurvy, defective in nourishment, 228
the scurvy induced where salt meat is no part of the diet, 225
and by violent muscular motion, 9
not always induced by a want of vegetables, 7
nor always by a fish diet, 7
when induced by a fish diet, 394
compound animal substances are the most easy and quick of digestion, 255
fish are the food of fish, 255
easy of digestion and assimilation, and abundant in nourishment, 255, 256
even with the want of vegetables does not always induce scurvy, 7
when fish induce scurvy, 395
nutritious in a two-fold degree compared to beef, 394
food increases the vigour both as a stimulus, and by assimilation, 226, 227, 228
vipers eminently so, 256
the craving for food and the faintness from long abstinence, arise from a want of the accustomed stimulus, 226, 227
that the body can be subsisted on a very little aliment, there are variety of instances, 227
there is a continual waste and decay of both fluids and solids, which is repaired by assimilation, 227, 262
the proper correctors of a sea diet are well fermented bread and drink, 225, 331, 337, 340, 478
Scurvy, the acid fruits, or their juices, 233, 245, 257, 309, 331, 337, 349
fresh meat and fresh vegetables, 262
acid of tartar, 337, 309
malt and turpentine spruce, 331, 309
in default of these, the best succedaneum for them are as follows, 309
portable soup, 309
sour crout, 309, 331, 338
sour beer, 470
porter beer, 344
portable beer, or essence of malt and hops, 309, 482
tartar ale, 344
portable whey, 284
milk, ib.
portable lemonade, 309, 335, 336
or rob of orange, lemon, or lime juice, 309, 262, 265, 333, 349
fixed air, 346
vinegar, 309, 340
how preserved, 342
wheat, 474
decoction of the woods, 343
or medicines to counteract such causes of scurvy, as cannot be prevented or obviated, 349
and that cannot be cured by *regimen*, 265—inefficacy of *regimen* alone, 352
the first and most efficacious we know of, is that main source

ſource of health, and genuine medicine of nature, the BILE. The uſefulneſs and neceſſity of which in the preſervation of *life* and *health* are ſufficiently known to every one, acquainted with the rational and ſolid principles of phyſic. *See Bile.* 2, 3, 4, 5, 9, 10, 11, 182, 183 184, 188, 190, 274, 275

Scurvy, for the preſervation of the ſanative qualities of this ineſtimable fluid ſecretion, and regulating ſtandard of health in the animal ſyſtem. In correcting the qualities, moderating the redundance, and ſupplying the deficiency of the *bile*, we recommend the *antefebrile* and *antiſcorbutic medicines*, ſo frequently recurred to in this treatiſe, which ſee. And in default of them, ſuch others as we have enumerated in their proper places, *which ſee*

and for counteracting the cauſes of ſcurvy, and the *endemics* of hot climates

Diviſion of vegetable food, 250, 252, 253, 254

vegetable food in *hot climates*, 258, 259 to 261, 309, 331, 346, 464, 474

diviſion of animal food, 250, 251, 252, 253, 254, 255

animal food in hot climates, 256, 257, 259, 261

compound animal food, 255, 256, 257, 265, 474, *ſee wheat*

Scurvy, acid, beneficial with ſuch food, 257

eggs, 257, 475

fiſh, 255, 256, 394

AIR.

Much is aſcribable to the agency of the air, 216, 222, 223, 230, 447 to 449

particularly to ſea air, 216, 222, 230, 311

leſs ſalubrious than the land air, 447 to 449

may be weakened in its ſpring by moiſture, 216, 230, 447

how it acquires ſuch noxious qualities, 216, 217, 222, 447 to 449, 451 to 462

by the ſteams ariſing from the ocean, 217, 447 to 461, 453, 454

by agitation of the ſea, and by agitation in pure water, 222, 452 to 456

the air of the ocean may be leſs fit than the *land air* for terreſtrial animals, 217, 453, 454, 458

from being impregnated with moiſture, 216, 230, 248, 311, 447 to 450, 458 to 461

as damp fogs and moiſt exhalations, 311, 359, 362, 449

dews, 311, 359

in proportion as it is ſaturated with phlogiſton, 230, 245, 246, 311

and dry fogs, 362, 392

or charged with any effluvia capable of rendering it unfit for

for reſpiration, 216, 217, 218, 230, 245, 246, 311, 455
Scurvy, as that of marſhes, ſwamps, ſtagnate water, ſlimy ſhores, &c. 230, 449
the confined air of a ſhip, hoſpital, or priſon, conſiſting of the foul ſteneh of diſeaſe, breath, and perſpirable matter, &c. 216, 246, 247
or influenced by the changes of the atmoſphere, 215, 222, 230, 247, 311, 447
as cold and moiſture, 215, 311, 362, 450
heat, 225, 244, 362, 447 to 450, 423 to 461
induces fever, 37
how to be cooled, 40
heat and moiſture, 215, 224, 362, 453
denſity or gravity, 220, 221, 243, 447, 453
the difference between its greateſt and leaſt gravity, 220
a common error about, 220
its influence on the animal ſyſtem, 220, 221
its rarity or levity, 220, 221, 447, 453
its expanſion, 220, 447
ſea and land breezes, 37, 443
the rational of ſea and land breezes, 447
their comparative effects, 443 to 449
the admirable proviſion of Providence, for the reſtoration and purification of air, tainted, foul, or corrupted, 218, 221, 224
Scurvy, by reſpiration, perſpiration, combuſtion, &c. 218, 223, 230, 248, 449
or impregnated by any phlogiſtic proceſs, 230, 453, 455
fixed air, though unreſpirable, is ſalutary when taken in with our food, 346
the land air is reſtored by vegetation, 218, 219, 222, 249
by the ſun's light, 218
by the decompoſition of water, 219
by culture, 449
its pabulum vitæ, 217, 218, 455
or medium of reſpiration, 218, 248, 448
in conjunction with motion, a corrector of putrefaction, 246, 255
a continual ſupply of freſh air being neceſſary to animal life, 216, 448
how corrected and renewed on board ſhip, 277—by ventilation, by burning various ſubſtances in it, and by ſteams of vinegar, &c. 278
how cooled or refreſhed on ſhore, 40, 448
vital air, maintains the life of animals longer than common atmoſpheric air, 218, 219, xli.
inflammable xli. they by combuſtion, form water, 219, 456 to 461
from what ſubſtance vital air

is procurable, 218
Vegetables do not thrive in it, 219
produces water by combuſtion with inflammable air, 219, 456
injured by the reſpiration of the inhabitants of the deep, and by the corruption of them, 216, 223
phlogiſticated air, animals cannot live in it, 218, 249, 448
ſuffocation the immediate conſequence of reſpiring it, 248
vegetables thrive in it, 219, 249
they render common air purer by abſorbing its phlogiſticated part, 219, 249
the mutual dependance between the vegetable and animal kingdoms, 150, 224
the air extricated from fermenting fluids, deadly, 278
thoſe from vinegar excepted, 278
ſalutary when extricated in our ſtomachs, from the fluids and ſolids in digeſtion, 346
dry air, 233, 234, 248
pure air, 233, 234, 248
beneficially applied to check colliquative ſweats, 33
ſome judgment may be formed of it by reflection, 245, 246, 247
and by proper inſtruments with greater accuracy, 455, 456
the teſt of its purity by nitrous gas, 456
the medium of animal heat, 248
Air, becomes phlogiſticated by reſpiration, 218, 248, 456
the ſcorbutics in the third ſtage of the diſeaſe ſeldom are cured without the benefit of the *land air*, 295, 443 to 449

ATMOSPHERE.

Heat of, &c. its influence, 37, 215
promotes the ſeptic degeneracy of the fluids, 395
changes more ſenſibly felt in hot, than in a cold climate, 215, 224, 230, 395, 447, 458
unfavourable to reſpiration, 448, 454
cold, 395
favourable to reſpiration, 395
moiſture, 443, 450, 454, 455
means of determining the quantity, 455
cold and moiſture in any latitude a primary cauſe of ſcurvy, 215, 450, 453
dryneſs, 233, 234, 392
cold and moiſture, 215, 311, 361, 450, 453
cold and dryneſs, 234
purity, 233, 234, 455
how eſtimated, 455, 456
inſtruments for that purpoſe, 455
Heat and moiſture, 224, 448
Heat favourable to perſpiration, 399
the internal heat of the human body nearly the ſame in all climates, 395
temperate atmoſphere, remarks on, 395, 396

Atmoſphere, heat and dryneſs, 362, 392
weight or gravity, &c. 220, 343, 447
denſity, 220, 343, 447
greateſt in fine weather, 220
levity, 220, 221, 447
increaſed by foggy weather, 220
by moiſture, 447, 458
rarity, 447, 458
changes, 215, 222, 443 to 449, 458 to 462
to what aſcribable, 222, 443 to 462
the agency not ſufficiently attended to, 215, 216, 223
its compoſition, 219, 455
a mixture of vital air, and a noxious part, 220, 456
means of reſtoring its vital part, 218, 219, 221, 461
condenſes and expands, 220, 447 to 449, 458
ample means employed by Providence for repleniſhing it with the vital principle 221
the animal ſyſtem how affected by its gravity and levity, 121, 220, 461
we are not fully acquainted with the means of reſtoring purity to the ſea air, 221
viciſſitudes or changes of the atmoſphere, 215, 216, 223, 443 to 449, 458, 458, 461
a thunder ſtorm, 458
rain, 453
effects of the ſun's diurnal influence, 443 to 449
inſtruments for eſtimating the denſity, heat, ſalubrity, moiſture, electric or phlogiſtic properties of the atmoſphere, 454 to 456
Scurvy, in all putreſcent diſeaſes, the patient ſhould be acceſſible to the free circulation of air as poſſible, or as he can well bear, 32, 40
remarks on ſhips cruiſing in the narrow ſeas, and at a very ſmall diſtance from land, its effects in inducing the ſcurvy, 217, 451
impregnated with particles from the land, 217, 449
its pabulum vitæ, 217, 218, 455
now better underſtood, 218
rendered unfit for the purpoſes of life, 218
reſtored by vegetation and the ſun's light, 218, 219

CURE OF DISEASES.

The book of nature is open to every inquiſitive reſearch. Happy is the phyſician that is well read therein.
And thrice happy the patients who fall to his lot.
Information is liberally diſperſed, throughout (what we may call) its four volumes: the vegetable, mineral, animal, and marine kingdoms.
And abundant materials for the palliation, or cure, of every diſeaſe incident to the animal body, xiii. xxi.
May be found in theſe exhauſtleſs ſtorehouſes, to which we have free acceſs, xiii.

It

Scurvy. It is a maxim in phyſic, that if the cauſe is removed, the effect will ceaſe, 267
reaſon ſuggeſts, for the prevention and cure of this diſeaſe, a pure dry air—a diet of eaſy digeſtion; as a due admixture of animal and vegetable food—the free uſe of acid fruits, and tonic, antiſeptic medicines, 233
the *antiſcorbutic powders* are well calculated to counteract the cauſes, and palliate the moſt urgent ſymptoms, &c. 334

CURE OF THE SCURVY.

Two things ſhould be ever preſent to the young practitioner. The keeping the *bile* in a healthy, ſound ſtate, as a genuine medicine of nature's own elaboration, within that ſyſtem it is deſtined to preſerve, 3
and, to take care, that its proper antagoniſt in the animal ſyſtem, *acid*, with which probably, all nature's productions abound, is adminiſtered in ſufficient quantity, 183, 188, 208, 217, 218, 273, to 276
the acidifying principle of which, is that part of the atmoſphere, known to be *vital air*: whether it exiſts in a concrete fluid, or aerial ſtate, is not ſo much the object of our preſent enquiry, as to procure our patients this *pabulum vitæ*, as unimpregnated, or, as little depraved with any taints, as poſſible, 217, 218, 223, 456, 461
Scurvy, the *curative* indications in the *ſcurvy* will be, to reſtore the *ſecretions* and *excretions*, on which the health and vigour of the animal ſyſtem depend, 243, 276
by giving energy and elaſticity to the living *fibres*, compoſing that part of the vaſcular ſyſtem, termed the *ſolids*, 262, 264, 276
to charge the veſſels of the ſyſtem with ſtimulating well attenuated *fluids*, and to rouſe the circulation to its uſual *action* and *reaction*, 228, 250, 262, 264, 276, 277, 288
or, with a due admixture of *animal* and *vegetable* food, capable of being digeſted, and elaborated into a good and wholeſome chyle, eaſy of aſſimilation, 233, 259 to 261, 262, 264, 276
to ſupply the wants, and repair the waſte of the animal œconomy, 229, 262, 264, 276
which will be to reſtore and invigorate the whole conſtitution by *regimen*, to a due performance of the natural *ſecretions* and *excretions*, 229, 233, 262, 265, 276, 288, 297, 299, 306 to 310, 361

Scurvy, this is not generally to be found in a ſea regimen, 350, 352
as an auxiliary help, the *medical intentions* muſt be, to keep open, by gentle evacuations, the outlets and emunctories of the body, viz; the belly, urinary paſſages, and the excretory ducts of the ſkin, 243, 244, 245, 247, 263, 286, 287, 288, 289
and a free diſcharge by the lungs, 464
aſſiſted with the warm bath and friction, 283, 288, 290, 291, 292
by anointing the body, 283
with air and exerciſe, and laſtly the cold bath, 246, 288, 289, 291, 247, 234
by correcting, ventilating, and renewing the air, 277
when this general method of cure cannot be complied with, by the aſſiſtance of the moſt deſirable *regimen* at ſea, 264, 267
and that the chylification is weakened by diſeaſe, the gaſtric, inteſtinal, and pancreatic juices, peccant in quantity and quality, the ſecretion of the *bile* retarded and diminiſhed, and the periſtaltic motion of the inteſtines proportionably languid, 297
we may reſort with ſome confidence to the due adminiſtration of the *antiſcorbutic* and *antifebrile* powders, 234, 243, 246, 266, 280, 281, 297
Scurvy, as conjointly a *bracer* of the *ſolids*, *corrector* of the *fluids*, and a ſtrengthening fortifier of the ſyſtem, under the untoward circumſtances, the life of a ſailor is uſually expoſed to, 265, 266
ſweat is an evacuation from which ſcorbutics derive great advantage, 244, 247
procured by the *antifebrile powder*, with remarkable ſucceſs, 244
by other ſudorifics, 299 to 303
in evacuating the morbid acrimony, the utmoſt care and attention are requiſite to ſupport the ſtrength and ſpirits of the patient, 244
caution againſt bleeding, 244
againſt ſudden expoſure to the air, in an advanced ſtage of the diſeaſe, 245, 290, 292
caution after long abſtinence from vegetables, 245
againſt the encouragement of ſloth and inactivity, 289, 290, 291, 292
Curative indications in the firſt ſtage, 273, 276 to 292
In the ſecond and third ſtages, 296, 298, 299 to 301, 302 to 312
In ſcorbutic dyſentery, 312 to 315
In ſcorbutic dropſy, 312 to 315
In ſcorbutic ulcers, 322 to 333

Scurvy, the means of cure enumerated, are reducible to those three heads; *nutrientia*, *sudorifica*, *stimulantia*, and the *tonica*, 262
the first of these acts upon the simple solid, by repairing the necessary and daily waste of the machine; not to be replaced by an indigestable diet, 262
instanced in the fresh boiled beef and greens of Haslar hospital, and fresh broths, 265
the acid juices of lemons and oranges promote perspiration and urine, 265, 464
the wine acidulated and sweetened, are cordial and stimulant, 263—and promote the excretions of the skin and kidnies, 263
wine and spirit bitter, are tonic and antiseptic, 264, 265
bitters subdue *defective nourishment* in the system, and fortify it against *humidity*, 265
this accounts for the beneficial effects ascribed to mineral waters in the scurvy, 163, 276
various have been the modes of practice suggested for the cure of this disease, 229
perspiration, its quantity by Dr. Keell, and Dr. Hales, 247,
by Sanctorius, 247
its importance, 247, 464
vitiates the surrounding air, 245, 246, 247, 279
a small increase or diminution of it attended with evident consequences, 247
Scurvy, although the diminution of one excretion is generally attended with the increase of another; that of the lungs cannot be directed in any great degree into another channel, 247
how affected by dry and moist air, 248
by air saturated in the phlogiston, 248
extricates heat from the atmosphere, every inspiration, 248
and communicates phlogiston to it, 249
air, by whatever means phlogisticated, becomes noxious to animals, and salutary to vegetables, 249

T.

TOBACCO, 91, 279, 380, 382
Third class of antispasmodics, xxxvi.
Torpor of animals produces sleep, &c. 5
counteracts the degeneracy of the septic animal process in the fluids, 6
prevents animal secretion and excretion, ib.
similar to impaired irritability, 9
and diminished nervous sensation, 10
Tendons, a twitching of, 35
convulsive twitching of, 30

Tropical fever, 36, 37, *ſee fever*
Tropical latitudes, the ſeaſons, 36
Turpentine makes an antiſcorbutic drink, 311
Tympanites, how it may be induced by maltreatment of fevers, 39
Twitching of the tendons, 25
in ſpaſms, 26, 27
Typhus fever, xxxii. *ſee fever*
Tetanus, or locked jaw, 80 to 101, 409 to 416
termed *triſmus tonicus* by Sauvages, 81, *ſee antiſpaſmodics and locked jaw*
Tonic medicines, 242
Saline ſubſtances, their properties, 312, 402
Sal arſenici, 157
ammoniac, 159
ſedative, 2
Glauberi, 402
catharticum amarum, 402
cream of tartar, 412
ſalt of ſteel,
of zinc,
Tinctures, 14, 84, 301, 303
Tartar, cream of
its acid, 337
Teneriffe, the Montpelier of the Canaries, 393
the wine of, ſalutary in all latitudes, 393
it and Madeira, why preferred, 406
inhabitants, when ſubject to the ſcurvy, 393
Tempeſtuous weather at ſea induces ſcurvy, fever, and flux, 453
Tempeſtuous weather, owing to the changes of the atmoſphere, 222
Thunder ſtorm deſcribed and accounted for, 458, 459
Thermometer, 454
Tapioca, 480
Tainted meats, to whom harmleſs, 394

V.

VITRIOLIC acid attracts moiſture 455
uſe in the black vomit, 179
Valerian, a ſtimulant, inflammatory, antiſpaſmodic: introduction, xxxvi. 471
Volatile alkalies, ſimilar in ſome of their effects to the antifebrile powders, 2
Vomiting in malignant fever, 48
remarks on, 19, 133, 401, 406, 417, 436, 437
the black vomit, 48
Vibices, 52, 112, 403
Virulent gonorrhœa, the cure of, 150
Vipers, 256
Vomit black, 179, 181
vitriolic acid in, 179
a remark on vomits, 153
Vinegar, its uſes and qualities, 340, 341
method of preſerving it, 342
how flavoured agreeably, 343, *et ſeq. ſee acids, paſſim*
Vegetables, 215, 258, 259, 261, 308, 309, 331, 338, 346, 350, 390, 391, 394, 465, 474
a total want of them does not always induce the ſcurvy, 7
Vegetables, a total diet of them induces the ſcurvy, 259
are not conducive to the longevity

vity of thoſe who live on them, 251
Vegetables, ſucceſsfully cure the ſcurvy, 346, 262
which they are ſuppoſed to do from their native acid and fixed air, 250 to 260, 346
as a food they are divided and ſubdivided into claſſes, 250 to 253
their crudities, and relaxing qualities, how corrected, 253, 260, 265, 394
as a purifier of the air of the atmoſphere, when phlogiſticated, by reſpiration, combuſtion, &c. they abſorb its phlogiſton, and render it reſpirable, 224, 249, *ſee air and atmoſphere.*
leſs ſtrengthening than in animal food, 254
the aſtringent principle of vegetables is acid, 211, 275, *ſee acids*
preſerved for ſea, 338 to 242, *ſee lemon and lime juice*
freſh vegetables, &c. counteract the influence of a ſalt diet, 390, 464
Ulcers of Negroes, 381, 383, 389
Ulcers ſcorbutic, 294, 233, 316, 320, 324, 383
treatment of, 322 to 329, 383
all ulcers are capable of inducing hectic complaints, 204
ſcorbutic yield to a proper diet, 324
to our medicines, xxxii. 327
Urine in fevers, 137
Urine, in dyſentery, 419
in ſcurvy, 231, 467

W.

WEAKEST claſs of antiſpaſmodics, introduction, xxxv.
Watchings in fevers, the cauſe, 22
what indicated to relieve them, ib.
Wounds and amputations, 80 to 90, and 101, 409
Whey muſtard, a ſubſtitute for, 24
cream of tartar, 169
portable, 284, 309
cyder, muſtard, vinegar, and wine whey, recommended, 289
Wheat, 309
its qualities, 474
its analyſis, 478
why the moſt nouriſhing of all grain, 474
a few rational remarks on the *germ* of plants, and the *embryo* of animals, 474, 475
contains more animal matter than other grain, 475
the proportion of animal to vegetable, 476
from whence wheat flour derives its ſuperiority, 476, 477
its animal gluten, 476, 477
reſembles the caſeous part of milk or cheeſe, 477
qualities of bread made with the whole of the flour, 478
and with the ſtarch of the flour ſeparately, 478

Wheat, this laſt more incorruptible, 478
rational of making bread, 478
an uſeful ferment found in tropical latitudes, 478
well fermented bread counteracts the influence of ſalt diet, 478
Water, 222
remarks on, 310
when putrid, induces ſcurvy, 358
compoſition of, 219, 456, 458
decompoſition of, 219, 223, 458, 460, 461
portable, 483 to 487
rendered ſweet by fermentation, 482
obtainable by condenſation from the atmoſphere, 485
by attraction, 486
by filteration from the ſea, 485
by diſtillation, 485
by abſorption, 486, 487
how obtainable in hot climates, 485
how obtainable in cold climates, 485
means of determining the quantity of water at any time, in any place, floating in the atmoſphere, 440, 445
when longed for, 405
when it ſhould not be refuſed to the ſick, 405
how ſweetened, 78, 481, 482, 485
Willow bark, 160
Wine, 308, 309
Wines medicated, 126, 129, 163, 172, 304, 313, 349, 407
Teneriffe, ſalutary in all climates, 406
wines fitteſt for hot climates, 406
Water, 310, 358, 405, 481 to 487
Wort, the method of preparing, 347
as a preventative, &c. 351
Wounds of Negroes, 381
Wounds of ſcorbutics, formerly healed, break out afreſh, 132, 295, *ſee wounds and amputations*
Weſt Indian fever, 12, 27, 37, *ſee fever*
Women, European women get their health better in the Eaſt Indies than the men, 320
not ſo well as the men in Africa, 390

Y.

YELLOW fever, introduction, xxix. and 12, 401
Yellow colour of the ſkin in fevers, frequently a ſymptom of a diſeaſed liver, 401
fever, 49, 54, 55, *ſee fever*
Yaws, 372, 380
a diſeaſe not confined to Negroes, 374
ſymptoms, 372
inoculation propoſed, 373
how cured by the Negroes, 380
like the ſmall-pox, never attacks a perſon a ſecond time, 372
is frequently contracted by the European ſailors, *ſee note, and errata, or errors*, &c.

a courſe

Yaws, a courſe of antifebrile powders recommended, 373

Z.

ZOURHOOL, 338
Zinc, flowers of, a ſedative anti-inflammatory antiſpaſmodic, xxxvii
Zinc, cures an epilepſy, 153, and ib. not a confulſio, ib.
anti-hiſterics, 153, and ib.
flowers of, ſimilar in ſome of its effects to the antifebrile powders, 2

AN

INDEX

TO THE

MEDICAL COMPOSITIONS,

PROGRESSIVELY ARRANGED.

ANTI-EMETIC draught, 18
Julep of camphire and cinnamon, 19
Antifebrile bolus, 21, 24
Decoction of bark and quinces, 21
Antifebrile poultice, 23
Julep of camphire, cinnamon, and ſaffron, 24
Antifebrile pills, 26
electuary, 26
clyſter, 27
Peppermint draught, 30
Spiritus mindereri, 39
Antifebrile cathartic bolus, 63
anodyne clyſter, 64
anodyne anti-emetic ointment, 64
anodyne fermentation, 64
Antifebrile anodyne purgative draught 65
antiſpaſmodic tincture, 84
antiſpaſmodic electuary, 85
antiſpaſmodic ointment, 85
antiſpaſmodic pills, 86
antiſpaſmodic ſinapiſm, 87
antiſpaſmodic clyſter, 87
antiſpaſmodic mixture, 87
Ointment for the cure of the bite of a mad dog, 106
Pills for the cure of the bite of a mad dog, 107
Alimentary clyſter, 107
Antifebrile antiſpaſmodic *cataplaſm for the bite of a mad dog*, 108

Pill for the barbiers, 112
Sinapiſm, 115
Antiſpaſmodic draught, 116
Antiphrenitic ointment, 117
Clyſter, ib.
Wine, 126
Mixture for the flux, 126
Saline draught, 127
Antidyſenteric balſam, ib.
Laxative clyſter, 127, 163
Anti-emetic wine, 129
Sedative clyſter, 130
Anti-emetic paſte, ib.
Aſtringent electuary, 132
Sudorific pills, 135
Cathartic powder, ib.
Decoction of the bark, 139
The gentle opiate, ib.
Bark clyſter, 140
Bolus, 141
Antifebrile draught, 162
Solution, 163
Antihydropic bolus, 169
Cream of tartar whey, ib.
Solution of, 170
Antifebrile ſquill bolus, ib.
Deobſtruent pills, 172
Wine, ib.
Diuretic bolus, 243
Purgative bolus, ib.
Antifebrile purgative bolus, 173
Acid anti-emetic julep, 180
Acid anti-emetic julep, 181
Vomitive bolus, 173
Deobſtruent mixture, 175
Mercurial pills, ib.
Murcurial ointment, 176
Muſtard whey, 244
Antiſcorbutic bolus, 243
Sudorific bolus, 280
Aſtringent lozenges, 280
Acid lozenges, 281
Portable whey, 284
Aſtringent gargle, 287
Aſtringent acid gargle, 288
Sudorific pills, 299
Powders, 300, 302
Tincture, 301
Bitter tincture, 303
Antiſcorbutic ſolution, 304
Corroborant wine, 304
Antihydropic mixture, 306
Beneficially employed as a gargle, 306, 307
Tonic medicated wine, 313
The anodyne ſheathing clyſter, 314
Plenk's mercurial ſolution, 325
Pills, 321
Rob of lemon juice, 333
Dry lemonade, 335
Acid of tartar, 337
Sour-crout, 338
Decoction of the woods, 343
Sweet wort, 347, 351, 353
Porter beer, 344
Portable whey, 244
Tartar ale, 344
Portable lemonade, 335
Acidulated wine, 349
Antiſebrile ſudorific bolus, 366, 368
Antiſebrile clyſter, 367, 369
Liniment of white lead, 381
Of lime-juice and palm-oil, 383
Pills for the dyſentery, 419
The purging mixture, 409
The emetic mixture, 403
The æthereal anodyne mixture, 493
Antiſcorbutic ointment, 494
Poultice of lime-juice and oat-meal, 383
Mixture of palm oil and lime-juice, 383

AN

AN

INDEX

TO THE

COMPOSITIONS IN THIS WORK,

ALPHABETICALLY ARRANGED.

APPLICATIONS, *see blisters, clysters, &c. &c. &c.*

Blisters, xxxiii. 44, 45, 46, 47, 55, 66, 67, 316, 324, 330, 367, 419, 433, 463, *see blisters in the other index*

Boluses, 21, 24, 63, 141, 169, 170, 173, 243, 280, 366, 368

Cataplasm, 108

Clysters, 27, 64, 87, 107, 117, 127, 130, 140, 310, 367, 369
remarks on, 42

Cathartics, 63, 65, 135, 243, 402

Diuretics, 304, 306

Decoctions, 21, 139, 343, 380, 382

Draughts, 18, 30, 65, 116, 127, 162

Emetics, 403
anti-emetic, 64, 129, 130, 180, 281
remarks on emetics, 19, 129, 133, 178, 179, 181, 401, 406, 417, 435

Electuaries, 26, 15, 132

Fever powders, *see antifebrile powders*

Fomentations, 64

Gargles, 287, 288, 306, 307
astringent, 287
acid astringent, 288

Hot climates, wines fittest for, 408

Juleps, 19, 24, 180, 181

Linitments, 85, 381, 383

Lozenges, 280, 281

Lemonade, portable, 336

Marmalade, 309

Mixtures, 39, 87, 126, 175, 306, 383, 402, 403, 493

Milk portable, 384

Ointments, 64, 85, 100, 117, 130, 176, 493

Paste, anti-emetic, 130

Pessary, 380

Pills, 26, 86, 107, 118, 135, 172, 175, 299, 321, 419

Powders, 135, 300, 302, *see antifebrile and antiscorbutic powders*

Poultices,

Poultices, 23, 87, 103, 115, 381, 383
Porter-beer, 344
Purges, 63, 65, 135, 243, 402
Regimen, *ſee diet*
Sudorific powders, 300, 302
Sinapiſms, 23, 87, 108, 115, 381, 383
Sour-crout, 338, 339, 340
Saline draughts, 18, 127, 400
properties, 312, 402
Solutions, 163, 170, 304, 320
Sweet wort, 347, 351, 353
Spiritus mindereri, 39
Tinctures, 14, 84, 301, 303
Tartar-ale, 344
cream of, 312, 402
its acid, 337
whey of, 169
ſolution of, 170
Whey, portable, 284
muſtard whey, 255
Wines medicated, 126, 129, 163, 172, 304, 313, 349, 407
thoſe fitteſt for hot climates, 406



ERRATA,

ERRATA,

OR ERRORS, OMISSIONS, AND OBSERVATIONS,

Page	Line.	
xi	7	READ *tortured*, for tutored
xv	6	inſtead of the ſecond part, read *of this treatiſe*
xxii		the note ſee ſcurvy, p. read 212
xxxv	25	for queroinus, read *quercinus*
xxx	4	after the word fever, read *where*
xxxvi	28	after the word opium, by way of note, ſhould be added this obſervation: If allaying, aſſuaging, mitigation, and compoſing, entitle a medicine to the appellation of *ſedative*, none can have a better title to it than *opium*. This does not contradict Dr. Home's arrangement; as all ſedatives, in a low degree, are ſtimulants. See p. xxxiii.
xxxvii	20	for triſmas, read *triſmus*
	21	for conluſio, read *convulſio*
xl	14	omit the word *own*
	18	for more, read *mere*
	19	for ſucceſsful, read *ſucceſs*
xl		to the note, ſee acids, p. add 182 to 213
2	3	read *volatile* before alkalies
4	16	for hopatic, read *hepatic*
7	27	for preparation, read *proportion*
19	6	after fourth, add *of a paper*
20	3	after part, add *of a paper*
22	28	inſtead of ſonapiſms, read *ſinapiſms*
23	1	for motives, read *vomitives*
24	8	for ſinopiſms, read *ſinapiſms*
34		and of the note, ſee page, read 44 to 47
35	9	inſtead of No. read *page* 19
35	16	for precordia, read *præcordiæ*
42	6	inſtead of it, read *they*
45	18	inſtead of them any, read *the many*
50	28	inſtead of diſputation, read *diſpoſition*
51	15	inſtead of diſtant, read *diſtinct*
		inſtead of uſe, read *cauſe*

for

Page.	Line.	
53	15	for efforts, read *effects*
68	20	for better, read *bitter*; and for the word their, read *its*
81	8	for savage, read *sauvages*
84	14	at the end of this line add, *with the addition of syrup of ginger*
120	22	for or, read *of*
118	30	omit the word *little*
122	11	for barborigmi, read *barborigmi*
127	16	after essential, read *oil*
128	25	for anti-acid, read *anti-acrid*
136	10	after page, read 19, 118, *see scurvy and postscript*
140	23	for No. read *page* 127
145	14	for julap, read *julep*
148	28	instead of excretary, read *excretory*
172	20	after see page, add 126 *and* 163
177	22	after four, add *six or eight*
174	17	for disaitient, read *discutient*
179	22	for morgogni, read *morgagni*
180	25	for julap, read *julep*
181	5	for julap, read *julep*
204	21	instead of spotting, read *spitting*
215	28	the two first lines of this sentence should be read thus. *The relaxed state of the body from heat, and the great obstruction of perspiration*
223	8	instead of animal, read *vegetable*
227	26	at the end of this line, by way of note, read, *a similar observation is made by Atkins in his Navy Surgeon, published in* 1734, *p.* 252
236	15	after the word page, add 171
247	20	read by way of note, *Cheselden makes it much more*
247	5	for perspiration, read *respiration*
248	26	at the end of this, by way of note, read, *Dr. Robinson ascribed similar qualities to the air, in the office of respiration and animal heat: in his treatise on the animal œconomy, published in Dublin,* 1720, *and* 1730
276	6	for emuctories, read *emunctories*
280	23	for Bologne, read *Bologna*
283	6	for the opening outlets on the surface, read, *opening the outlets on the surface*
285	1	for palatable, read *portable*
283	22	after oil add, *and then with a dry woollen cloth again, until all greasiness disappears*

after

Page. Line.

286 2 after the word pound, add, or refer by way of *note*; the butyraceous part ſwims on the ſurface of the water, or whey, and the caſeous remains undiſſolved: the former is to be ſkimmed, and the latter ſtrained off

289 14 & 15 for, and the bad tendency, the dejection it excites, read *the bad tendency and dejection it excites*

295 5 for whilet-*bone*, read *whirle-bone*, *patella*, or knee-pan

297 21 for Epigraſtic, read *Hypogaſtric*.

300 26 inſtead of, muſt have differences in the degree of ſtrength, read *muſt have a difference in the degree of ſtrength*

304 9 for in, read *it*

19 for drams, read *ſcruples*

307 15 & 16 inſtead of, but ſtill retaining the power of ſubtilizing this ſtream of the blood of life alſo, read *but ſtill retaining the power of ſubtilizing this ſtream of life alſo*.

321 13 for ℥j, read ℥vj *of quickſilver*

322 25 after is equal to, add *a*

20 for five, read *two and a half grains*

328 24 after urine, add *ſtool*

317 19 for patent, read *potent*

358 18 for muday, read *mid day*

363 at the bottom of this page, read by way of note to the firſt paragraph.—Vermin, at all times loathſome and unhealthy, are on board ſhip peculiarly ſo, from its cloſe confined crevices, which afford them innumerable receptacles. Theſe are brought on board with vegetables and fruits from the ſhore, and particularly in the *weed*, which ſhould be floated along ſide. If brought off in a boat, ought to be kept along ſide, untill carefully cleanſed, or well waſhed

374 by way of note to the firſt paragraph, add to the bottom: *it is frequently contracted by the European ſailors in the ſlave trade*

379 16 for vaſcutories, read *veſicutories*

378 the note marked †, belongs to *Crakuas*, and not to the *ſleepy diſeaſe*

383 add to the note, *of the laſt century*

389 5 inſtead of putting, read *poutting*

397 22 omit the word *their*

417 to the note at the bottom of this page, after the word dyſenteries

teries in the laſt line, introduce *cholera morbus and bilious fever*

418 21 for Mr. Paiſſy, read *Mr. Paiſly*

430 4 for mas, read *maſs*

434 22 for calomel, read *colombo*

444 19 & 20 inſtead of ſuch part of the earth and ocean as forms the atmoſphere, or part of the globe, read *ſuch part of the earth and ocean, and atmoſphere as forms the part of the globe*

465 21 for vol. p. 195, read *vol.* 1, *p.* 195

471 ſecond note, for 36, read *xxxvi.*

475 20 for late, read *laſtly*

453 22 after the word wind, read *hence wind is uſually ſucceeded by rain*

478 14 for mas read *maſs*

in addition to the firſt note of page 478, ANIMAL GLUTEN *is in a concrete ſtate in the bones of animals, and may be extracted by the coction of the ſhavings or powder of bones, even at ſea: or hartſhorn ſhavings may be taken to ſea for the purpoſe, or iſinglaſs*

488 10 after the word China, read *and the Philippines to Mexico, and*

FINIS.